# FLOOD CONTROL—NEW HOPE DAM, CAPE FEAR RIVER BASIN, NORTH CAROLINA



## HEARING

BEFORE A

## SUBCOMMITTEE OF THE COMMITTEE ON PUBLIC WORKS UNITED STATES SENATE

EIGHTY-EIGHTH CONGRESS

FIRST SESSION

ON

AUTHORIZATION OF THE CONSTRUCTION OF THE NEW HOPE DAM AND RESERVOIR, CAPE FEAR RIVER BASIN, NORTH CAROLINA, AND FOR OTHER PURPOSES

MARCH 15, 1963

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# FLOOD CONTROL—NEW HOPE DAM, CAPE FEAR RIVER BASIN, N.C.

FRIDAY, MARCH 15, 1963

U.S. SENATE,
SUBCOMMITTEE ON FLOOD CONTROL—RIVERS AND HARBORS,
OF THE COMMITTEE ON PUBLIC WORKS,
*Washington, D.C.*

The subcommittee met, pursuant to call, at 10:10 a.m., in room 4200, New Senate Office Building, Senator B. Everett Jordan presiding.

Present: Senators Jordan (chairman), Randolph, Metcalf, Inouye, Bayh, Nelson, Boggs, and Pearson.

Senator JORDAN. The subcommittee will come to order.

If it is agreeable with the members of the committee, we would like to take up the agenda this morning in the following fashion: First, I would like to say that Senator McNamara, chairman of the committee, had to be out of the city and he asked me to preside at this subcommittee hearing this morning. I am glad to do it and I am delighted that there are so many members of the subcommittee present for this hearing, because it is a very important hearing.

If it is agreeable with the members of the subcommittee we will hear the Corps of Engineers first, that is, just to present their prepared statement, and also the Soil Conservation Service, and just let them read their statements, and then be questioned later on in the hearing, because there are a number of out-of-town people who would like to be heard.

Of course any of them who want to stay can stay as long as the hearing goes on. If that is agreeable with the committee, we will ask the Corps of Engineers to be heard, just to read their statement and the Soil Conservation Service, read their statements into the record, get that in for us and reserve the questioning until later on, after which we will call the Congressmen, because they are all busy.

If it is agreeable with the committee that is the procedure we will follow.

The first witness this morning is Gen. Jackson Graham, Director of Civil Works, Corps of Engineers.

We are glad to have you with us. We understand you are rather new in this post and we are glad to have you with us.

General GRAHAM. Thank you, sir.

Senator JORDAN. You can bring anyone you wish with you to testify.

## STATEMENT OF BRIG. GEN. JACKSON GRAHAM, OFFICE OF THE CHIEF OF ENGINEERS, CORPS OF ENGINEERS, U.S. ARMY

General GRAHAM. Mr. Chairman and members of the committee, it is a privilege to appear here today in my first meeting with you. In accordance with your wishes we are prepared to discuss projects considered, but not included in the River and Harbor and Flood Control Acts of 1962, and such other aspects of the Corps of Engineers civil works program as you may care to explore.

During the hearings on the River and Harbor and Flood Control Acts of 1962, the Corps of Engineers civil works program was discussed with you. Since the present hearings are in effect a continuation of those of last year, and in the interest of conserving your time, I will not repeat a description of this program.

It is my understanding that you wish to hear from us today concerning the Cape Fear River, N.C. Col. Robert C. Marshall, our Assistant Director of Civil Works for Eastern Divisions, is prepared to discuss the project. We are at your disposal.

Senator JORDAN. Thank you.

Colonel MARSHALL. We are glad to have you with us.

## STATEMENT OF COL. ROBERT C. MARSHALL, ASSISTANT DIRECTOR OF CIVIL WORKS FOR EASTERN DIVISIONS, OFFICE OF THE CHIEF OF ENGINEERS, CORPS OF ENGINEERS, U.S. ARMY

Colonel MARSHALL. Thank you, sir.

Mr. Chairman and members of the committee, I will be assisted by Mr. John Murray, a member of our staff.

Mr. Chairman, this project concerns the Cape Fear River Basin in North Carolina.

The authority for the Corps of Engineers' study was provided by a resolution of the House Committee on Flood Control adopted in 1946.

The Cape Fear River is formed by the confluence of the Deep and Haw Rivers which rise in the north central part of North Carolina in a region of rolling hills known as the Piedmont Plateau.

It flows generally southeast and empties into the Atlantic Ocean at Cape Fear, N.C., 28 miles below Wilmington. The drainage area for the total basin is about 8,500 square miles. The population in the basin is 849,000 (Greensboro has 119,000, Fayetteville has 47,000, and Wilmington, 44,000; 1960 census).

In this area timber is an extensive resource and lumber and pulpwood are important products. The major industries are farming, manufacture of textiles, furniture, and tobacco products. Wilmington is a major seaport (5 million tons of commerce in 1960).

An area of 314,000 acres is subject to flooding, of which 70 percent is located along the main stem of the Cape Fear River. For example, flood stages have been exceeded at Fayetteville over 100 times in the last 70 years. There are no Corps of Engineers flood control projects in this area specifically authorized by the Congress.



Local interests desire flood protection along the Cape Fear River, particularly at Fayetteville, and have suggested the need for water conservation for the improvement of navigation, pollution abatement, and other uses.

In the Greensboro area local interests request development of the Deep River Basin with a dam at the Randleman site. Other interests, primarily from Chatham County, have organized the New Hope Valley Association in opposition to the New Hope Reservoir, and in favor of a series of small dams generally in accordance with an alternate plan presented in a joint Corps-Agriculture report issued on May 9, 1961.

The recommended plan of the Chief of Engineers consists of a general plan for reservoirs at New Hope, Randleman, and Howards Mill, plus other local flood control projects and reservoirs that are found feasible to be constructed as the need develops; and specifically authorization of the New Hope Reservoir for construction in the interest of flood control, low flow regulation, recreation and other purposes; and that authority be granted to continue studies of the Cape Fear River Basin in order that authorization for other projects may be prepared.

The total first cost of the New Hope Reservoir is $25,462,000; annual charges total $865,000; annual benefits, $2,340,000.

The benefit-cost ratio, based on a 100-year period of analysis, is 2.5 to 1. (If recomputed at the current interest rate and over a 50-year period, B/C ratio is 1.7.)

Local interests would be required to bear the construction costs allocated to municipal and industrial water supply in an amount presently estimated at $319,000; to bear all annual costs for operation and maintenance and major replacements allocated to municipal and industrial water supply, an amount presently estimated at $8,000 annually; and to protect downstream channel from encroachments and obstructions. Satisfactory assurances have been received from local interests that they will comply with the foregoing requirements for local cooperation.

We have obtained satisfactory assurances from local interests. The Federal Power Commission, the Department of the Interior, the Department of Commerce and the Department of Health, Education, and Welfare have offered no major objections to the report.

The Department of Agriculture has indicated that our report does not conclusively show that the comprehensive plan, recommended by the Chief of Engineers, will provide the most feasible method for development of the lands and water resources of this basin.

The State of North Carolina has commented favorably. The Bureau of the Budget has posed no objection to submission of this report to the Congress at this time.

This completes my statement, sir.

Senator JORDAN. Thank you very much, Colonel Marshall.

Mr. Carl Brown of the Soil Conservation Service.

## STATEMENT OF HOLLIS R. WILLIAMS, ASSISTANT ADMINISTRATOR FOR WATERSHEDS, SOIL CONSERVATION SERVICE, READ BY CARL B. BROWN, DEPUTY ASSISTANT ADMINISTRATOR, SOIL CONSERVATION SERVICE, U.S. DEPARTMENT OF AGRICULTURE

Mr. BROWN. Thank you, sir, I was going to introduce our State conservationist, Mr. Richard M. Dailey, from the State of North Carolina.

Senator JORDAN. We are glad to have you with us. You may proceed.

Mr. BROWN. Mr. Chairman, I would like to say that the statement which I am about to present has been cleared in the Office of the Secretary of Agriculture and does represent the official position of the Department of Agriculture.

Senator JORDAN. Thank you.

Mr. BROWN. Mr. Chairman and members of the committee, we appreciate this opportunity to appear before your committee in connection with your consideration of the recommendations of the Secretary of the Army for authorization of a program of water resource development in the Cape Fear River basin, North Carolina, as set forth in House Document 508, 87th Congress.

The Department of Agriculture has a vital concern with the conservation and development of the water and related land resources of the Nation. The Secretary of Agriculture together with the Secretaries of the Army, Interior, and Health, Education, and Welfare, would constitute the Water Resources Council of the Federal Government under the Water Resources Act proposed to Congress by the President in 1961. These Secretaries are now functioning by Presidential directive on an ad hoc basis in the consideration of such national water and related land resource matters as uniform standards for the formulation and economic evaluation of river basin projects and programs; development of standards for evaluation of recreation benefits; development of more uniform policies for cost sharing on flood control and flood prevention; and coordination of budget requests for carrying out river basin surveys and investigations.

The Secretary of Agriculture has authority under the Watershed Protection and Flood Prevention Act, Public Law 566, 83d Congress, as amended, and other acts to cooperate with other Federal agencies, the States, and local organizations in carrying out investigations and surveys for water and related land resource developments in watersheds and river basins, and to assist the States and local organizations in carrying out such programs within the limitations prescribed in these acts.

The Secretary has delegated to the Administrator of the Soil Conservation Service the overall responsibility of the Department for watershed and river basin activities. We, therefore, appear in behalf of the Secretary and the Administrator to clarify any aspects of concern to this committee on the Department's position with respect to the development of the water resources of the Cape Fear River basin.

We believe several points concerning our position should be made clear to the committee.

Under the authority of section 6 of Public Law 566 the Soil Conservation Service cooperated with the Corps of Engineers and the State of North Carolina in making a joint survey of the Cape Fear River Basin that was completed in 1961.



The report of this joint survey set forth two economically feasible programs for flood control with some added benefits for other purposes such as water supply, irrigation, and recreation. This report made no recommendation for authorization of either of the programs referred to in the joint report as plans A and B.

Plan B, consisting of some 232 small reservoirs primarily for flood prevention, was formulated by a sampling technique developed and used by the Soil Conservation Service over a long period of years. This technique is fully adequate to establish the level of benefits and the economic feasibility of a program consisting of many similar units.

In the Cape Fear study detailed field surveys were made of 34 dams in 5 subwatersheds, and the results were expanded to the entire basin. A river basin survey based on sampling techniques, however, does not provide the basis for moving into construction.

Therefore, the Soil Conservation Service has not recommended at any time the authorization of the program of 232 small dams described as plan B in the joint report without further field studies.

It has been alleged in some press reports that the Soil Conservation Service is opposed to the New Hope Dam proposed by the Chief of Engineers. The comments of the Department of Agriculture printed in House Document 508 have been listed in the Senate Public Works Committee report as unfavorable to the recommendations of the Chief of Engineers. We feel that this is an improper interpretation of those comments. We have not at any time been and are not now opposed to the authorization of the New Hope Dam. We believe that a careful reading of our letter of comments on the recommendations of the Chief of Engineers will show that we pointed out rather fully the benefits that would stem from a reservoir constructed at the New Hope site.

We did go on to state, however, that:

> In view of these and other factors, the Department of Agriculture believes that the data presented in the report do not conclusively show that the comprehensive plan of improvements recommended by the Chief of Engineers will provide the most feasible method for the development of the land and water resources of the Cape Fear River Basin.

We believe the comments of the Department of Agriculture reinforce the position of the Chief of Engineers who, in his report, in addition to recommending immediate authorization of the New Hope Dam, recommended authorization of additional surveys and investigations to determine the total needs and economic justification for development of all the water resources of the Cape Fear River Basin.

We believe that this committee, taking cognizance of the position of the Chief of Engineers that the reservoir at the New Hope site will only partially meet the development needs of the Cape Fear River Basin, may want to give emphasis to the urgency of a complete survey to determine the further needs of the basin.

We believe, moreover, that this committee may want to recognize the importance of developing a coordinated program in which the interests of rural as well as urban people, who look to the Department of Agriculture for assistance in flood prevention and water resource development and management in headwater tributaries and upstream watersheds, are properly served. We believe that acceleration of needed land treatment as an integral part of a total program of devel-

opment is essential to protect all reservoirs, large or small, against excessive silting which will, in the absence of such protection, inevitably suffer not only substantial losses of total capacity but will be rendered far less desirable to meet pressing needs for outdoor recreation, fish and wildlife development, and other purposes.

We would like to make the point with this committee that Public Law 566 may not be the most expeditious way through which a basinwide program of upstream watershed protection and development can be accomplished. Public Law 566 is a program for providing assistance to local people and local organizations to solve local problems in individual small watersheds. It would require more than 20 Public Law 566 projects to cover the Cape Fear River Basin.

This committee recognized the need for additional general legislation when it reported favorably on H.R. 3801, introduced by former Congressman Frank Smith in the last Congress. This bill went on to enactment and became Public Law 87-639, when it was approved by the President on September 5, 1962. This act specifically provides for joint surveys of river basins by the Secretary of the Army and the Secretary of Agriculture, upon receipt of resolutions from the Committee on Public Works of either the House or Senate. It provides for the submission of a joint report of these agencies on a coordinated program for consideration for authorization by the Congress.

The role of the Department of Agriculture in such a joint endeavor should be, as we see it, to develop that part of a basinwide program that is consistent with the framework already determined by Congress in its enactment of, and amendments to Public Law 566.

Specifically, a joint report on a coordinated program should provide for the Department of Agriculture to have responsibility for accelerated land treatment for soil conservation and other purposes, and the installation of multiple-purpose reservoirs up to a maximum capacity now provided by law in Public Law 566 of 25,000 acre-feet, and other structural measures in upstream tributaries. This would be the upstream complement to such larger reservoirs as Howards Mill, Randleman, or others which may be found needed and justified for construction by the Corps of Engineers as a part of a coordinated plan.

The Soil Conservation Service is now carrying out the upstream component of a coordinated river basin program such as we have described in several river basins under authorization included in the Flood Control Act of 1944. The Trinity River Basin in Texas, the Washita River Basin in Oklahoma, the Upper Coosa River Basin in Georgia and the Upper Potomac River Basin in Virginia and West Virginia are examples of basins in which upstream watershed work has been fully coordinated with programs of larger reservoirs of the Corps of Engineers and Bureau of Reclamation.

The Soil Conservation Service is this year constructing 153 upstream dams within the four river basins I have named. We cite these figures to make the point that even though it would take a minimum of 2 years after funds were made available to carry out field surveys and submit a report of a joint survey, the accomplishment of the needed land treatment and the construction of all the upstream reservoirs could be physically completed within a period of 5 to 10 years or about as quickly as the detailed planning and construction of larger reservoirs, providing in both cases, of course, that funds were made available to meet installation schedules.



Mr. Chairman, we again express our appreciation for this opportunity to give our views to the committee. We will be pleased to answer any questions you may have.

Senator JORDAN. Thank you very much, Mr. Brown.

We appreciate your testimony. Thank you, Carl, we are glad to have you with us.

If Congressman Lennon will come up, please, sir.

Mr. LENNON. Thank you.

Senator JORDAN. Mr. Lennon, if you will present any testimony you wish to give and call up any witnesses you wish to testify and introduce them, we will be glad to hear them at this time.

## STATEMENT OF HON. ALTON LENNON, A U.S. REPRESENTATIVE OF THE SEVENTH DISTRICT OF THE STATE OF NORTH CAROLINA

Mr. LENNON. Thank you, Mr. Chairman, and gentlemen of the subcommittee.

The flood control project, gentlemen of the subcommittee, that you are considering today, actually physically embraces the heartland of North Carolina. We had hoped to have, and may have shortly for you to see visually a map of the Cape Fear River Basin superimposed upon the State of North Carolina, and then you will be able to determine for yourself that it actually embraces the heartland of North Carolina.

History has shown that a wide use of water is essential to progress. I might say before I go any further that I am a lifelong resident of the lower Cape Fear Valley. I have waded in the floods that have been described to have taken place annually over a period of not 100 years, but for a good part of, a substantial part of that time.

I am grateful to you, Mr. Chairman, and the other members of this subcommittee for an opportunity to appear before you and I bespeak the grateful appreciation of some 400,000 people whose future are determined by the actions of this, and the House committee, and the subsequent actions of the Congress.

We are grateful for this opportunity.

Water shortage is creating serious problems in many sections of North Carolina and of our country today. Fortunately, North Carolina has an abundant rainfall. Our rainfall is ample for our present and future needs if, and this is a very large if, if we are wise in our use and conservation of this water.

From the news media recently, I think most of us have been impressed with the fact that Pennsylvania and West Virginia and Ohio and some other sections of the country have had an overabundance of water in the last few weeks.

The Cape Fear River is our State's largest river. Its basin has an area of 8,570 square miles, more than 17 percent of our entire State.

This Cape Fear Basin has a population, calculated in recent months since the 1960 census, of almost a million people, which is just a little less than one-fourth of our State's entire population.

The fact that we have experienced disastrous floods and serious water shortages in the Cape Fear River Basin attests to the fact that thus far we have not been wise in the use of our water, but we

cannot afford to dwell on mistakes of the past. We must look to the future with a firm resolve that we will now act with wisdom and courage to see that this God-given resource is developed in a manner that will benefit our people today and for many years to come.

The Corps of Engineers have studied the problems of the Cape Fear Basin on and off for the past 34 years. There is a gentleman in the hearing room today who was the assistant district engineer and subsequently the district engineer for North Carolina who made this first study 34 years ago.

At that time, 34 years ago, they submitted a report which considered flood control, navigation, and power development. Under the criteria in use at that time, no improvement could be justified.

However, even then, 34 years ago, the computed benefits were only slightly below the cost. The Flood Control Act of 1936 liberalized and necessarily so, such participation, and this, together with our substantial basin development has radically changed the situation since that time.

Today, gentlemen, there is no question but that the benefits which would be derived from, No. 1, flood control, low-flow regulation and recreation would far exceed this cost.

The question, gentlemen, we are faced today with is: How shall these improvements be provided? The Corps of Engineers at every level, the district engineer, the division engineer, the Chief of the Corps of Engineers and the Board of Engineers for Rivers and Harbors and Flood Control, as well as the Bureau of the Budget have put its stamp of approval both from the engineering and a financial and economical standpoint, upon the proposal of the Corps of Engineers to construct, first, and this is an essential keystone in this project, the New Hope Dam.

The Corps of Engineers have made very definite and specific recommendations as follows:

Number one, for the immediate construction, a 100-foot dam on the Haw River just below the confluence of the New Hope Creek, which was described to you and which you see on this scale map here to my left.

This dam will create a permanent lake of 9,400 acres. Above this level will be a capacity to store a tremendous volume of flood water, 541,000 acre-feet in times of floods, and which would be retained for a few days and then spilled out.

At such time the lake could have an area of as much as 30,000 acres. The dam will have a gated spillway to control and regulate the discharge from the reservoir and downstream flow of the river.

Now, gentlemen, that is important, being able to regulate your downstream flow, it is essential to obtain this in order to avoid or certainly reduce the pollution that we have in all of our streams.

In 1951, the Legislature of North Carolina created the stream pollution commission, and it is—it has done a magnificent job with industry and with our municipalities, in trying to get rid of industrial and chemical effluent as well as human wastage from our city sewer system.

The dam will have a gated spillway to control and regulate the discharge and downstream flow. The estimated cost is $26 million. The benefit-cost ratio is 2.5 to 1.

Small upstream reservoirs, as required by local flood control for irrigation, water supply, and allied purposes, are also considered in this



overall projected program. The soil Conservation Service has conceived a plan for a system of 232 so-called small dams, and if I could digress for just a minute, to say to you gentlemen that in early 1957 the district engineer of North Carolina was prepared to send to the division engineer, and up through the channels to the Congress, its recommendation with respect to the construction, the immediate construction, the essential and necessary construction of the New Hope Dam. There was an agreement, however, made at that time whereby the Soil Conservation Service could come in and make a joint study. The study was not authorized by the Congress. It was sort of an informal agreement.

Now that took place in 1957, and that is the reason we had to wait to come to you today, because it took that long, almost, at least 5 years because it is true the report was made last year, to get where we are today.

The Soil Conservation Service in its report has not officially recommended anything. They have merely stated that it would be possible to build a system of small dams and that these dams could produce certain benefits.

Since the dams proposed by the Soil Conservation Service have not—are not definitely located—it is more logical I believe to consider their proposal as a concept rather than a plan.

I am in favor of the Corps of Engineers plan because No. 1, the present policy and existing law permits the construction proposed.

No. 2, the plan provides for both present and future needs and a logical sequential construction program which can be geared to basin growth and development.

No. 3, major benefits would accrue with the building of the New Hope Dam.

I think to we people, of course, who live in the lower Cape Fear Valley and who are subject to intensive flooding almost annually, this next statement is significant.

This dam alone, the New Hope Dam, would reduce future flood damage by 87 percent. It would provide low-flow regulation, 600 cubic feet per second minimum, which is 30 times the present flow at Lillington, N. C.—which you see downstream—and provide a large lake for recreational purposes.

No. 4, the construction of the New Hope Dam according to the Engineers plan and recommendation would be followed by dams at Howards Mill and Randleman. These two dams would further reduce downstream flood damage and provide two additional lakes for recreational purposes.

Now there is nothing whatever in the corps plan that precludes the building of small dams under Public Law 566 or Public Law 87–639, the so-called Smith Act. In fact the corps plan contemplates that many such dams will be built.

Thus, gentlemen, any need for irrigation or flood control in the headwater area can be met by the Soil Conservation Service under the present law.

I cannot in logic or good sense favor the earlier suggestion of the Soil Conservation Service that we accept only the small-dam concept of some 232 dams in the upper Cape Fear River Basin, in lieu of the essential New Hope Dam and Reservoir. I do not favor it for these reasons: There are no laws in existence today under which such a

system could logically be constructed. Therefore major legislative changes would be required before the damsites could even be located.

I am talking about the Soil Conservation Service's suggestion.

Such legislative changes, in my opinion, would never be favorably considered by the Congress.

In Pittsboro, N.C., which is in Chatham County and is the only county of the 18 which opposes the New Hope Dam, the 18 counties in the Cape Fear River Basin, naturally where the reservoir is projected to be, there is some objection and it is understandable on the part of the people who will be displaced. It is inevitable, gentlemen, to have progress to meet the needs of growth of the many, that some few will suffer; that is a tragedy that we have in our way of life.

But if anyone would read the testimony of this hearing that was held in Pittsboro, the county seat of Chatham County on February 16, 1961, and particularly make reference to the testimony of Mr. Poage of Texas, who is on the Agriculture Committee of the House, and is on the subcommittee pertaining to watersheds protection and flood control, it is pretty obvious that the Congress isn't likely to move into the field of general flood control through the acquisition by the Federal Government tax money of lands to make these ponds possible.

The Soil Conservation Service now builds dams under the authority of Public Laws 566 and 87-639. However it would be next to impossible to construct such a large number of dams under either of these laws. Even if it could be done local people would have to donate the land and maintain and operate the dams—finding more than 200 damsites, and they propose 232. Finding more than 200 damsites which would flood no farmland, create no controversies, provide both short-range and long-range benefits comparable to the corps plan, and yet cost no more money, involves complexities that would try the ingenuity of a Solomon.

In the first place the proposed small dam system is not as flexible as many people think. These are not farm ponds, gentlemen, we are talking about. According to the report on the joint study that was prepared and performed by the Soil Conservation Service, and the Corps of Engineers, the average impoundment—I am talking about on the Soil Conservation's concept—the average impoundment will exceed 300 acres in area and the total land required will be 78,000 acres, more than twice that required for the New Hope Dam.

Some of these dams will be 60 feet high, and will flood as much as 1,500 acres—some of these 232 dams we are talking about.

Obviously it will not be possible to find alternate sites for many of these larger dams. Thus flexibility is confined largely to the selection of sites for the smaller dams.

However even this degree of flexibility of the dam works to its disadvantage. It has certainly been the experience of the Corps of Engineers, and other private civilian consultant engineers that I have talked to, that where the public is concerned a multiple choice always produces multiple points of view.

Thus in trying to please everyone we face the inevitable danger of pleasing no one.

The point is this, gentlemen: If we should ever give up the idea of constructing the New Hope Dam and adopt the small-dam approach with the idea of eliminating controversy I am certain we would be in for dismal disappointment.

Furthermore we must realize that our decisions regarding developments of the Cape Fear River Basin, the entire basin, will have a marked influence on future plans for the development of other basins in North Carolina and in the Nation.

Although a system of small dams could produce flood control benefits to some degree, such a system would not and could not provide low-flow regulation in times of drought. The reason for this is obvious. The small dams as proposed by the Soil Conservation Service operate automatically, that is, when the water reaches a certain predetermined level they begin to discharge. As the water surface rises the discharge increases. When the reservoir is full the excess water is discharged through an overflow spillway. When flow into the reservoir decreases water surface is automatically lowered until it reaches the predetermined level.

Here is the question: In times of drought the small reservoir has no water in storage to augment that low flow. With a large reservoir, such as New Hope, a large quantity of water is stored and released gradually over a period of drought to produce a minimum stream downflow of 600 cubic feet per second, as compared with the figure that I gave you a few minutes ago.

The low-flow regulation feature is most highly desirable for pollution abatement and essential, gentlemen, for future development of the basin.

To provide this feature in a small dam system would require additional storage, and manual operation at each small reservoir. This would make their costs prohibitive.

It is true that the construction of the dam at the New Hope will displace approximately, and these figures are in dispute, the Corps of Engineers says it will not displace more than 110 families; the opponents say around 150.

I sincerely wish that this was not true for I realize these people have a sentimental attachment for their homes and neighbors that mean so much. I have already commented on that.

In summary, gentlemen, I favor the Corps of Engineers plan. I think that we have reached the solution in a sense in this matter that was at least over in the House a little bit argumentative, with a suggestion that we proceed immediately with the authorization of the construction of the New Hope Dam, and then in the same authorization process authorize a concurrent study under Public Law 87-639 of the concept of the smaller dams in the area, with the Randleman Reservoir and the Howard Reservoir.

I favor the Corps of Engineers plan because it is a logical long-range plan geared to the present and future needs of the Cape Fear Basin. It is a plan that can be implemented under existing laws. Its benefit will be realized as soon as the first dam, New Hope, is constructed.

I apologize for taking so much of the committee's time, but, gentlemen, I have waited since my first appearance at a Corps of Engineers hearing in February 1957 for this opportunity, and I hope you will indulge me for taking so much of your valued time.

Mr. Chairman, if I may have the opportunity to introduce to this distinguished subcommittee the people who are here from North Carolina who support this project, the Corps of Engineers project.

Senator JORDAN. You may proceed, sir.

Mr. LENNON. Mr. Chairman, and gentlemen, I would like to say at the outset that Mr. Robert Butler, the mayor of the city of Fayetteville, N.C., who is the president of the Cape Fear Basin Development Association, had to return to North Carolina last evening. He asked me to express his regret. He had a meeting that he had to keep after being in Washington yesterday. He offered yesterday a resolution of the City Council of Fayetteville that is a current resolution and we would like to ask your permission and the permission of the committee to insert in the record very shortly a current resolution of the city of Fayetteville supporting this proposal.

Senator JORDAN. So ordered.

Mr. LENNON. Mr. Henry Tyson, chairman of the Board of County Commissioners of Cumberland County, the lower flood basin we call it, was here yesterday, had to return to Fayetteville for a meeting of his board this morning, and he asked me to pay his respects to this committee and asked for the opportunity to file a resolution of the board of county commissioners supporting this proposal.

Senator JORDAN. So ordered.

(The resolution referred to follows:)

COUNTY OF CUMBERLAND,
*Fayetteville, N.C., January 15, 1962.*

Hon. B. EVERETT JORDAN,
*U.S. Senate,*
*Washington, D.C.*

MY DEAR SENATOR: Enclosed for your information is a resolution adopted by the board of county commissioners at a meeting held January 12, 1962.

Please advise if any other action should be taken by the board which would help to implement this plan.

With kindest personal regards, I am

Sincerely yours,

C. L. TWINE,
*Clerk to the Board of Cumberland County Commissioners.*

Enclosure.

EXTRACT FROM MINUTES OF COUNTY COMMISSIONERS MEETING HELD JANUARY 12, 1962

Whereas the Board of Commissioners for Cumberland County has followed with keen interest the action of the U.S. Army Engineer Division, South Atlantic Corps of Engineers, reporting on the Cape Fear River Basin, N.C., for the immediate and future development and conservation of water resources authorized by a resolution duly adopted by the Committee on Flood Control of the House of Representatives, and have particularly noted the favorable report of the Corps of Engineers proposing reservoir projects at the New Hope site on the Haw River and at the Howard Mills and Randleman sites on Deep River; and

Whereas the Commissioners for Cumberland County, fully realizing the past flood damage on the Cape Fear River, feel that the plan of the Corps of Engineers would be of untold benefit to the Cape Fear River basin, in which the county of Cumberland is situated: Now, therefore, be it

*Resolved*, That the board of county commissioners fully support the report of the Corps of Engineers, and call upon the Members of Congress to take such action as may be necessary to implement the plan as set forth in the report; and be it further

*Resolved*, That a copy of this resolution be sent to Senators B. Everett Jordan and Sam J. Irvin, Jr., Gov. Terry Sanford, Congressman Alton Lennon, the U.S. Army Engineer Division, South Atlantic Corps of Engineers, the Fayetteville Chamber of Commerce, and the Cape Fear Basin Development Association.

The foregoing resolution was offered by Commissioner R. L. Blue, seconded by Commissioner J. McN. Gillis, and unanimously passed.



Mr. LENNON. Is Mr. Tatum, a member of the Board of County Commissioners from Bladen County, in the hearing room?

Is Mr. Hilburn a member of the board of county commissioners? Will you come forward? Mr. Hilburn is a member of the Board of County Commissioners of Bladen County, N.C., in the flood basin. He lives down there where we flood every year. Would you have a seat, sir, and express yourself to the distinguished members of the committee?

Senator JORDAN. Will you state your name and residence?

## STATEMENT OF W. B. HILBURN, MEMBER, BOARD OF COUNTY COMMISSIONERS, BLADEN COUNTY, N.C.

Mr. HILBURN. W. B. Hilburn, Bladenboro, a member of the Board of Commissioners, Bladen County.

I have lived there all my life, and I am familiar with the problems that we have been discussing more or less, and I think I can appreciate that we should go along and take the most feasible and reasonable solution, that which we call the Corps of Engineers' plan of a big dam and two or three other dams. That, in short, is my feeling and my understanding.

Any questions?

Senator JORDAN. No questions.

Do you have any other witnesses?

Mr. LENNON. Yes, thank you, Mr. Chairman.

Col. George W. Gillett, retired.

In presenting this witness to the committee, Mr. Chairman, and gentlemen of the subcommittee, I would like to state that he is a lifelong resident of the Cape Fear River Basin, a former district engineer, retired, now an engineering consultant to many agencies of the Federal Government in matters pertaining to water waste, flood control, and, in my personal knowledge, the man who has walked over every mile, you might say, from the top of the Cape Fear River Basin to the Atlantic Ocean where you could walk when we were in drought.

Senator JORDAN. Proceed, Colonel Gillette.

## STATEMENT OF COL. GEORGE W. GILLETTE, ENGINEERING AND ECONOMIC CONSULTANT, PORTS, HARBORS, AND WATERWAYS; CHAIRMAN, WILMINGTON PORT AND WATERWAY DEVELOPMENT COMMISSION

Colonel GILLETTE. Mr. Chairman, and gentlemen, technical studies of the potentials of the North Carolina's greatest river system have been going on for more than 30 years.

With your permission, I would like to tell you some of the studies I have conducted and which I think contributes to my qualifications to appear before this great body today.

I first began seriously to study the Cape Fear River in 1931–32 when I prepared a thesis based on the potentials for a fully developed system of dams for navigation, flood control, and power.

For this study, I was awarded a professional engineering degree from my college.

During this period of study, I visited and explored the sites of each of the proposed dams—New Hope, Randleman, and Howards Mill. I conducted the initial hearing on the well-conceived idea for developing the upper Cape Fear River. This was held in Fayetteville in August 1946 and was in response to a House resolution which was spearheaded by that able Member of Congress, the late J. Byard Clark.

I have given serious study to the effect of adequate flood control of this lock and dam No. 3, planning it and building it. I mention this to show you that I have seriously considered this project, proposed project, for many, many years.

I have traversed the Cape Fear River from its source, above Greensboro to the ocean and I do feel that I am qualified to have comments pertaining to this proposed development. I am not going to dwell on the controversial subject of large dams versus small dams, nor of such subjects, technical subjects as the geology and the ground water and other subjects, but I shall speak only on the effects of flood control, polution abatement, navigation and the cost to the Federal Government of maintaining navigation channels on the Cape Fear River from Fayetteville to the ocean.

My early studies showed that more than 8 feet of water could be—flood height would be reduced by more than 8 feet at Fayetteville, with a dam at New Hope. The Corps of Engineers' report actually attributed 9½ feet saving to that major flood control.

This reduction of flood heights in the Cape Fear River will be extended to Wilmington, and we do have our problems there during extreme conditions when the floodwaters come down and meet high tides from the ocean.

I have seen 6 feet of water over the docks at Wilmington and it could happen again and will happen again unless it is controlled by the dam.

Navigable channel depths are authorized from the ocean to Wilmington 34 feet, and from Wilmington to Fayetteville 8 feet. The annual cost of maintenance is nearly $600,000 to maintain not a complete 34-foot channel, but a navigable channel between Wilmington and the ocean; around $120,000 to maintain the channel between Wilmington and Fayetteville.

Now, Congress has authorized 38 feet of water from the ocean to Wilmington, and that will increase the problem. I am not prepared to give the exact figures in savings in the annual maintenance of this important navigational port if floods are controlled from above, but I will boldly estimate that the maintenance can be cut in half both below Wilmington and between Wilmington and Fayetteville.

What is more important, the navigation will be greatly improved. It is very difficult—navigation is very difficult now—in low stages between Wilmington and Fayetteville, but that will be improved because you will have a regulating stream flow.

One of the little problems we have in the Wilmington area is that of stream pollution. We think of it, but it is given too little thought, I think in other areas. The water supply of our system comes from the Cape Fear River, taking the water just about lock No. 1, and we



are much concerned with maintaining a pure and plentiful supply of fresh water.

Industries are locating in the rivers above Wilmington today. Our fish industry is somewhat affected by the pollution.

I take time here to read a letter from the vice president of one of our large industries, the Riegel Paper Corp.:

The low-flow augmentation that will result from the proposed New Hope Dam will be of great economic value to Riegel Paper Corp. This value lies in two areas: (1) By providing adequate water resources for future expansion of Riegel Paper Corp.'s facilities, and for the attraction of related industries, such as the new caustic chlorine plant now being built by the Allied Chemical Corp. adjacent to the Riegel plant site; and (2) by increasing the waste assimilative capacity of the Cape Fear River, resulting in a lower future economic burden for nonproductive waste treatment facilities.

The savings to Riegel Paper Corp. as a result of these factors will do much to enable our company to continue its economic growth and to provide job opportunities and economic security to southeastern North Carolina. We heartily endorse the proposed New Hope Dam.

I would like to add this word to that because it is difficult to treat, without an adequate flow as extreme low tide, the pollution of this stream adequately—it is most difficult and almost impossible.

Now the pollution problem is not only proposed as it virtually affects the conditions of today, but it also has a damaging effect on solicitation of businesses, industries in the future in that area. There is only one method, gentlemen, as I see it, and that is a regulated and coordinated streamflow that will hold back the floodwaters in the upper part of the State where they are needed to replenish the ground supply, and keep them off of the lower part where they are not needed.

I think we should, by all means, build the New Hope Dam as early as possible, and I do not think that any other system—other than the one covered in this report and I must say I have reread that with great interest and I find little to comment on adversely.

I think the economic justification is sound. The reason they have given in there—if anything, they have been too conservative probably in some of the savings that will be effected, particularly in the flood control in the area between Fayetteville and Wilmington and in the dredging operations to maintain the channel.

Gentlemen, I thank you very much for the privilege of being here today to present my views.

(The full statement of Colonel Gillette follows:)

PROPOSED PLAN FOR DEVELOPMENT OF THE CAPE FEAR RIVER BASIN

(By George W. Gillette, engineering and economic consultant, ports, harbors, and waterways; chairman, Wilmington Port and Waterway Development Commission)

Technical studies of the potentials of North Carolina's greatest river system have been going on for more than 30 years. With your permission I propose to tell you as briefly as possible some phases of this study, and my part in them that might contribute to my qualifications to appear before you today.

I first began seriously to study the Cape Fear River in 1931–32 when I prepared a theisis based on the potentials for a fully developed system of dams for navigation, flood control, and power. For this study, I was awarded a professional engineering degree from my college. During this period of study, I visited and explored the sites of each of the proposed dams—New Hope, Randleman, and Howards Mill. I conducted the initial hearing on the well-conceived idea for developing the upper Cape Fear River. This was held in Fayetteville

in August 1946, and was in response to a House resolution which was spearheaded by that able Member of Congress, the late J. Byard Clark.

I have given serious study to the effect of adequate flood control of this river system on navigation below Fayetteville. It seems well to mention that I had active charge, under the district engineer at Wilmington, of the planning and construction of lock and dam No. 3 at Elizabethtown.

Gentlemen, I have traversed the Cape Fear River from its source 15 miles above Greensboro to the Atlantic Ocean. I feel qualified to speak to you on the importance to carrying to fulfillment the plan outlined in the comprehensive report on the Cape Fear River Basin as submitted and recommended by the Corps of Engineers.

The controversial subject of large dams versus small dams will not be included in my remarks. Nor will such subjects as geology, ground water, and other technical subjects covered by others. I shall speak only on the effects the proposed dams would have on flood control, pollution abatement, navigation, and costs to the Federal Government of maintaining navigation channels on the Cape Fear River from Fayetteville to the ocean.

My early studies revealed that a dam, such as proposed at New Hope, would reduce the major flood height at Fayetteville by more than 8 feet. Actually the plan recommended by the Corps of Engineers will reduce the height of a major flood by approximately 9½ feet. By the same token this dam would reduce flooded areas below, in the Kelly area, and thereby reduce maintenance costs of dikes. Health conditions in this area would be improved. This reduction in flood heights on the Cape Fear above Wilmington will be extended to Wilmington Harbor where, under certain conditions of high ocean tides, combined with floodwaters above, can and does cause serious damage at Wilmington with a possible disruption of river traffic and an increase in the hazards of navigation due to swift currents.

Navigable channel depths are authorized at 34 feet from the ocean to Wilmington, 25 feet to Navassa, and 8 feet to Fayetteville. The annual cost of maintaining the scanty 34 feet to Wilmington is nearly $600,000 annually. To maintain 8 feet to Fayetteville costs approximately $120,000 annually.

Congress has authorized 38 feet from the ocean to Wilmington. Now I am not prepared to give an exact figure of the savings in annual maintenance of these important navigation courses if floods are controlled above, but I will boldly estimate that, with the proposed three-dam system under coordinated control, the maintenance cost for dredging can be cut in half. What is more important navigation to Wilmington and to Fayetteville, which is now difficult during low stages, will be greatly improved.

One of the little-thought-of problems we in Wilmington experience is stream pollution. The water supply of our city comes from the Cape Fear River above lock and dam No. 1. We are much concerned with maintaining a pure and plentiful supply of fresh water. Industries are locating on the rivers above Wilmington. Our fish industry is today affected by pollution. I take time here to read an extract from a letter from the vice president of one of our largest industries, Riegel Paper Corp.:

"The low-flow augmentation that will result from the proposed New Hope Dam will be of great economic value to Riegel Paper Corp. This value lies in two areas: (1) By providing adequate water resources for future expansion of Riegel Paper Corp.'s facilities, and for the attraction of related industries, such as the new caustic chlorine plant now being built by the Allied Chemical Corp. adjacent to the Riegel plant site; and (2) by increasing the waste assimilative capacity of the Cape Fear River, resulting in a lower future economic burden for nonproductive waste treatment facilities.

"The savings to Riegel Paper Corp. as a result of these factors will do much to enable our company to continue its economic growth and to provide job opportunities and economic security to southeastern North Carolina. We heartily endorse the proposed New Hope Dam."

Now this pollution problem not only is presently adversely affecting this large corporation, but it is damaging in our efforts in soliciting new industries.

There is one answer to all of the above—a regulated and coordinated stream-flow. Hold back the floodwaters in the uplands where they are needed badly for supplying subsurface storage. Keep the floods off the lower river where we have a surplus. Let us build these proposed dams as quickly as possible. Regulate the flow as can only be done with such dams. That will increase the flow so badly needed in dry weather. This in turn will reduce stream pollution and aid [illegible] Fayetteville as well as making Fayetteville a better inland port. And, in so doing, thousands of dollars will be saved annually in maintenance work for dredging and diking. All of which will make for a much greater port of Wilmington, for a better State and country.



Gentlemen, it has been nearly 16 years since the first hearing was held on this proposed development. I have followed it ever since. I have recently reviewed this comprehensive report of the Corps of Engineers and find nothing wrong with it. In general, the savings to be effected are conservative. In the name of progress, health, improved water transportation, and economy in maintenance of navigation channels, I strongly recommend the New Hope project for early construction.

Senator JORDAN. Thank you very much, Colonel Gillette.

Congressman Lennon, do you have another witness?

Mr. LENNON. Yes, if the committee will indulge me. I want to call the former mayor of the city of Fayetteville to the committee's attention.

George, will you come around please, sir, I am so glad you are here. We had three mayors of Fayetteville at the hearing yesterday, two of them had to return.

George, I didn't file your statement.

## STATEMENT OF GEORGE B. HERNDON, FORMER MAYOR OF THE CITY OF FAYETTEVILLE, N.C.

Mr. HERNDON. I am the former mayor of the city of Fayetteville, and too, it gives me great pleasure, Mr. Chairman and gentlemen of the committee, to be here with you this morning.

I might say that during the 12 years that I served with the city of Fayetteville I cooperated in working very hard with the local citizens, chamber of commerce, in getting something done about our flood area in the Fayetteville and Cape Fear Basin, and I am here today and would like to go on record as appreciating anything that you as a subcommittee of the Senate of the United States will help us to do.

Senator JORDAN. Thank you very much, Mr. Herndon. We are mighty glad to have you with us also.

Mr. LENNON. Will you state your full name and position with Braden County, please, sir?

## STATEMENT OF W. G. FUSSELL, INDUSTRIAL REPRESENTATIVE, BLADEN COUNTY INDUSTRIAL DEVELOPMENT COMMISSION

Mr. FUSSELL. I am W. G. Fussell. I hold the position now as industrial representative of the Bladen County Industrial Development Commission. I have been for some time familiar with the situation, Mr. Chairman, as it affects Bladen County. It affects it very seriously, it has over a number of years. I have read the comprehensive study of the Corps of Engineers, and on behalf of my Industrial Development Commission I heartily recommend its approval by this committee and ultimately by Congress itself.

Senator JORDAN. Thank you very much.

Mr. LENNON. Mayor O. O. Allsbrook, Mr. Charles Clark, the secretary of the Cape Fear River Basin Association of Fayetteville.

Is Mr. J. M. Hall, chairman of the Board of County Commissioners, both he and Mr. Allsbrook were in here a few minutes ago. I guess they had to leave.

Come back, Mr. Clark, and identify yourself, please, sir.

Senator JORDAN. We are glad to have you with us. Have a seat, sir.

## STATEMENT OF CHARLES C. CLARK, SECRETARY, CAPE FEAR RIVER BASIN ASSOCIATION

Mr. CLARK. Mr. Chairman and members of the committee, I do appreciate the privilege of appearing here. As secretary-treasurer of the Cape Fear Basin Development Association we regretted that some of our officials and some of our spokesmen who have made a definite study of this situation did have to return. To meet with the approval of the group I would like to have the remarks of Mr. J. O. Tally, who presented a very comprehensive report on this proposal yesterday before the House committee for your consideration.

Senator JORDAN. You would like to have that put in the record?

Mr. CLARK. Yes. It is called A New Hope.

Senator JORDAN. It will follow your remarks.

Mr. CLARK. Gentlemen, it is a privilege especially for me to appear before this group because it happens that I am a displaced Oklahoman now living in North Carolina. I have seen what could be done with rivers. We have in Cumberland County approximately 170,000 people.

We have the distinction, or the problem, right now of being classified as a surplus labor area. One of the principal problems that we encounter in working toward industrial development is the fact we have water running out of our ears, but we do not have it under control so that it can be used.

Within the last 2 years we had one of America's leading industries that was quite interested in locating just south of the city of Fayetteville. It would have provided employment that in some 10 years' time would have provided a payroll the size of that now provided by Fort Bragg. They were interested to the point that they waited to make their decision on the location of this industry 10 months while we were trying to find out whether there could be a happy compromise reached between the two programs that have been presented.

After that time due to the fact they needed a minimum of 50 million gallons of water a day they did have to go elsewhere to another State. This would have helped solve our problem, and as you know being one of these areas that is identified as being a surplus labor area offers plenty of problems, and we feel that the development of the Engineers program would certainly be of great assistance to us in developing our portion of it.

(The article "A New Hope" referred to follows:)

### A NEW HOPE

We are deeply sensible of the honor we have to appear before you today. However we know that you are not here to give honor or to receive homage. You are here, as you have been for more than threescore years, to give unselfish and intensive attention to the water resource needs of our country and to receive all the objective information you can obtain to support sound judgment and effective action to plan and provide for those needs.

It is obedient to this spirit and for this opportunity that we come to you now. We bespeak your concern for and consideration of a project for our State that will benefit our State and your and our country. We call it New Hope. It is not just a general project; it is a specific proposal. It has been transmitted to the Congress of the United States for authorization and subsequent appropriation and execution.



#### LEGAL AUTHORITY

Pursuant to the authority of a resolution of the House of Representatives, Committee on Flood Control, adopted in May 1946, the Corps of Engineers, together with other interested groups, has, since that time, conducted a series of comprehensive surveys and studies of flood control and other aspects of the Cape Fear River Basin in North Carolina.

#### EXTENSIVE STUDY

It should therefore be noted, first, that the recommendations growing from that study which have been submitted to the U.S. Congress for action, and are being submitted now to you for support of that action, are not hastily conceived recommendations. They have been born of years of surveys, studies, hearings, and mature consideration and judgment.

#### ENDORSEMENTS

These recommendations have been successfully derived and reconsidered and endorsed by an ascending line of the appropriate and responsible officials—the district engineer, the Corps of Engineers, the Chief of the Corps of Engineers.

These recommendations, together with the full data of the studies supporting them, have been filed with you in the two volumes issued by the Corps of Engineers under original date of October 30, 1961, entitled "Comprehensive Report on Cape Fear River Basin, N.C."

#### SUPPORT OF PUBLIC OFFICIALS

The recommendations have been further and duly considered by the responsible and affected elected public officials. The Governor of North Carolina, both U.S. Senators from North Carolina, and every Congressman from North Carolina whose district is related to the project, save one, urges the Congress to enact into law, fact, and progress these recommendations.

It should therefore be noted, second, that perhaps never before has a project of this magnitude been brought before you for consideration and approval attended by so nearly unanimous and thoughtful approval of the highest public officials concerned.

To serve your purpose of consideration of this matter during this hearing and before and after your study of the cited volumes of data, this report (sometimes in the words of the district engineer, sometimes in edited form) will seek briefly to summarize and emphasize the major points of this project—to tell you what New Hope is, why it is, and why it is new hope for so many of us.

#### MAP

Let us, then, draw your attention to the attached general map—it illustrates the first specific proposal which needs action now. This is the construction of the New Hope Dam on the Haw River, a principal tributary of the Cape Fear. Looking at this map you will see that the Cape Fear River Basin has a drainage area of about 8,570 square miles. There are 22 counties of North Carolina wholly or partly in this basin.

#### CAPE FEAR BASIN

Although largely rural, this basin is the most highly industrialized basin in the State. The basin's greatest width is about 60 miles, its length is about 200 miles. In 1959 the waterborne commerce between Wilmington and Fayetteville, in a river commerce situation that is still almost completely unexploited, was 464,000 tons. The Cape Fear River area income, from $2.1 billion in 1958, is expected to reach $28.1 billion by 2010. Its population then will be 2 million compared with less than 850,000 in 1960.

#### FLOODS

Let us now consider the tragic, wasteful flood history of this basin. In my city, Fayetteville, and its surrounding area, the most populous and economically important part of the basin, flood stage on the Cape Fear River has been reached or exceeded 119 times during the period 1888–1957. Many of these floods have been damaging. Some have been devastating. Of these the worst occurred in 1945.

The September 1945 storm generally caused the highest flood stages of record throughout the Cape Fear River Basin, except in the headwaters. A flood of this magnitude has an estimated occurrence frequency of about once in 67 years at Pittsboro, once in 70 years at Moncure, once in 67 years at Lillington, once in 37 years at Fayetteville, and once in about 21 years at lock No. 2. The September 1945 flood stages in Fayetteville exceeded the August 1908 flood stages by 0.2 foot, which was the previous record flood.

Floods on the headwaters of the Cape Fear River in the upper reaches are flashy and usually have a duration of 2 to 4 days. On lower reaches of the river the flood plain widens to several miles, which results in slowly rising and falling stages. In this area floods usually last from 5 to 14 days.

Above the confluence of the Deep and Haw Rivers the basin is hilly, with narrow flood plains. Below the confluence the basin generally flattens and the flood plains become much wider. This area is devoted primarily to farming and contains some of the most productive agricultural land in the State. In general, all the main highways and railroads that cross the flood plains throughout the basin have been elevated so that they are flooded only by extreme stages. However many miles of secondary roads are flooded frequently.

Many small communities located on tributaries throughout the basin are subject to infrequent flood damage of varying severity. Several industrial plants and mill villages located on or adjacent to the main-stream flood plain of the Haw and Deep Rivers have suffered severe damages in the past.

About one-fourth of the commercial and residential area in and about Fayetteville and the community of East Fayetteville across the river are in the flood plain and were severely damaged by floodwaters in 1945. The area inundated by the 1945 flood west of the river at Fayetteville averaged about 1 mile in width and terminated at the edge of the main business and residential sections of Fayetteville; slightly higher flood stages would have caused considerably more damage. If the 1945 flood should occur again, a total of about 3,000 homes, 200 commercial and industrial establishments, schools, churches, and other public buildings which are now located in the 1945 flood zone would be affected. The commercial establishments are primarily retail stores and the industries affected consist of large oil and asphalt plants, textile factories, a chemical plant, a steel fabrication shop, cotton gins, and bottling plants. Many industrial tracts readily accessible to the navigable channel and water supply of the river have not been developed because of the risk of floods.

The flood plains of the minor tributaries are generally well developed, primarily because of the heavier, more fertile soils on the flood plains as compared to the adjacent uplands. While the flood plains of the main stems of the Haw and Deep Rivers are generally narrow and in some areas relatively inaccessible for farming, the soils are fertile and are farmed to some extent. The flood plains below the confluence of the Haw and Deep Rivers are very wide and generally more fertile and better adapted to more diversified farming than other farmlands throughout the basin.

The flood plains in the Cape Fear River Basin produce excellent crops of corn, tobacco, hay, and cotton. In addition many acres of truck, peanut, and soybeans are grown in the lower basin flood plains. The extensive timberlands supply many logs for lumber and pulpwood.

About 70 percent of the total 314,000 acres of flood plain in the Cape Fear River Basin is located along the main stem of the Cape Fear River, beginning about 13 miles upstream from Wilmington and extending upstream some 157 miles to the confluence of the Deep and Haw Rivers. Of 219,100 acres of flood plain in this reach, 48,000 acres have been cleared primarily for agriculture uses. Much of the woodland, which make up about 60 percent of the flood-plain area, has soils that would make good cropland if it were not for the floods. The cleared land used for farming has 41 percent of its acreage in corn, 20 percent in pasture, 26 percent in small grains and hay, 2 percent in truck crops, 9 percent in cotton, and 2 percent in tobacco. Only a small part of the land is used for growing winter crops. Stock rising is rather extensive, with 20 percent of the cleared land being used for pasture.

A considerable amount of flood damage occurs annually throughout the Cape Fear River Basin. Most of the flood damage occurs on the broad flood plains below the confluence of the Deep and Haw Rivers. The greatest loss in rural area results from tangible physical damage to agricultural property, crops, and to public roads. Nonrural losses are suffered predominately at the Fayetteville area and result from tangible physical and business damage to urban and industrial properties.



With the present agricultural development of the flood plains it is estimated that a recurrence of the September 1945 flood would cause rural damages amounting to about $3 million throughout the basin. Approximately 93 percent of these damages or $2.8 million worth, would occur on the flood plains along the main stem of the Cape Fear River below the confluence of the Deep and Haw Rivers. The average annual damages to the same properties are estimated to be $521,000 for the basin. About 82 percent of these average annual damages occur on the flood plains below the confluence of the Deep and Haw Rivers.

Nonrural flood losses are the tangible physical and business losses inflicted on urban and industrial properties, utilities, and transportation facilities, and the additional expenses incurred in providing emergency and precautionary measures. With the present nonrural flood-plain development in the Cape Fear River Basin it is estimated that a recurrence of the September 1945 flood would cause nonrural flood damages amounting to about $8 million, of which 82 percent would occur on the main-stem flood plains of the Cape Fear River below the confluence of the Deep and Haw Rivers. The average annual damage to nonrural properties in the basin is estimated to be $996,350. Approximately 85 percent of these damages occur on the lower Cape Fear River flood plains.

The greatest portion of the flool plains in the Cape Fear River Basin cannot be put to optimum use, largely due to the existing flood hazard. This applies particularly to the main-stem flood plains of the Cape Fear River. Assurances of reduced river stages are necessary to stimulate changes in current farming practices and urban development growth so that greater net returns may be realized from the lands lying in the flood plains.

## WATER SUPPLY

Although the Cape Fear River Basin is located in one of the most favored climatic regions, where rainfall is generally well distributed and relatively abundant, water shortages have been experienced in some years by a number of municipalities.

### EXISTING WATER SUPPLY PROJECTS

Practically all of the cities in the Cape Fear River Basin are continually expanding their water-supply systems to meet demands attendant upon population and industrial growth. In 1960 there were approximately 569,000 people being served by municipal or publicly owned water-supply systems located in the Cape Fear River Basin. About 83 percent of the users were served by systems utlizing impounded surface water which was used at an average rate of approximately 55 million gallons per day. The total design capacity of these systems is estimated at about 81 million gallons per day. Some 76 industrial plants used water at the average rate of about 45 million gallons per day, with 26 of the plants accounting for 97 percent of the average daily rate from surface-water supplies. The above industrial water-use rate does not include an average 561 million gallons per day required by two large thermopower generating plants for cooling water. This cooling-water requirement at times exceeds the daily flow at the intakes, and recirculation becomes mandatory.

### EXPECTED

Municipal and industrial process water usage from all sources is expected to about double in the Cape Fear River Basin within the next 20 years. Therefore, by the year 1980 an estimated total of approximately 200 million gallons per day will be needed. Future water requirements are based on the population growth and anticipated percent rate of industrial growth. A rigid interpretation of historical records has, in the past, almost always resulted in an underdesigned water system. The Select Committee on National Water Resources estimates that the present 147 gallons per capita per day of average municipal water use could conceivably increase to about 185 gallons per capita per day in 1980 and 225 gallons per capita per day in the year 2000, with a possible leveling off thereafter.

Based on an annual population growth of 2 percent, the projected municipal demands will surpass the available supply by 1970.

SUMMARY, PROBLEMS, SOLUTIONS, BENEFITS

*The problems*

*Flood control.*—The need for protection of the flood plains of the Cape Fear River Basin from disastrous floods has long been recognized. The general economic improvement, the development of new or enlarged industrial plants, and the topographic limitations of areas suitable for development have increased property values within the flood plains. The major flood of 1945, which caused extensive damage, focused attention sharply on the Cape Fear River Basin and emphasized the urgent need for flood protection. Recurrence of a storm equal in magnitude to that which produced the maximum flood stages of record would subject the area to damages estimated to range between $8 and $15 million, depending upon rainfall-intensity distribution and season of the year. The average annual damages in the basin under present conditions amount to $1,445,000 (1960 price level). Developments within the flood-plain area during the last decade indicate that further industrial and agricultural growth can be expected even if flood control is not provided. Taking this growth into consideration, average annual damages are estimated to be $1,736,000 over the next 100 years.

*Water supply.*—In several areas the dependable flow of the Cape Fear River and its tributaries is barely adequate to meet the present water-supply needs of industries and municipalities. Expansion of industry now under construction or planned will require either additional minimum dependable flow or expensive recirculation equipment. While the water supply for domestic consumption is fairly adequate at present, these local sources will be fully developed by the end of the next decade. After then, water must be taken in ever-increasing quantities to meet growing domestic needs. When these needs are considered it must be concluded that a higher dependable streamflow is essential if serious water shortages are to be avoided in the future. While the use of water for irrigation has not developed to any great extent at the present in the Cape Fear River Basin, it is anticipated that in the foreseeable future irrigation storage facilities will be a primary and urgent need throughout the basin.

*Water quality control.*—The pollution of the streams in the Cape Fear River Basin by industrial effluents and domestic sewage is of serious concern to the area because of its effect on the suitability of the stream for water supply and recreation and because of its public health implications. Treatment by known methods will not alone suffice to bring the streams to acceptable standards of quality. Therefore, dilution of industrial and domestic wastes is a necessary factor in maintaining acceptable standards of water quality. The amount of water flowing during dry periods is insufficient to provide adquate dilution under present conditions.

*Recreation.*—The growth in the population in the basin, especially in the industrial and metropolitan centers near the upper portion of the basin, has increased the need for recreational development. Such development requires facilities for water sports, fishing, and for activities such as camping, picnicking, and sightseeing. Existing recreational facilities are inadequate and incapable of being expanded to meet the needs.

*The solution.*—The comprehensive plan of development of water resources presented in this report is designed to provide a basis for solution of most of the water problems in the basin for the next 100 years. Cognizance was taken of views and desires of local interests and other agencies of the State and Federal Governments; however, the plan was not based on the opinions of any one group, but envisions the needs of the basin as a whole and how those needs may be best met in the future with a balanced system of improvements. It is contemplated that all interested agencies will be working cooperatively on the different phases of development during the life of the plan. The immediate needs are for flood protection, low-flow regulation, and recreation. Construction of the New Hope project would be the most efficient way to fulfill the immediate needs. (Precise data on the New Hope Dam are shown on exhibit A.) The Randelman and Howards Mill projects as well as several small reservoir projects would be completed by 1975 and would provide additional flood protection, water supply, and recreational facilities which would meet the basin's growing needs.



Additional reservoirs throughout the basin would be phased into the plan to provide solutions to the anticipated future water conservation needs. This arrangement provides sufficient flexibility scheduling of the latter projects to offset any inaccuracies in the projections of anticipated needs.

*Immediate solution.*—Approximately 87 percent of the average annual flood damage in the basin occurs on the flood plains below the New Hope damsite, and the New Hope project is capable of reducing the flood damages on the flood plains below that point by about 80 percent, which is equivalent to about 70 percent of all basin damage. The immediate low-flow regulation needs occur primarily on the main stem of the Cape Fear River below the New Hope project site. The low-flow augmentation from the New Hope project, which would assure a dependable minimum flow of 600 cubic feet per second at Lillington, would meet these immediate needs. The immediate recreation needs for the basin are primarily centered in the more heavily populated upper basin area.

*Benefits, general.*—Benefits which would accrue from the comprehensive plan of development result from flood control, provisions for immediate and future water-supply storage, water-quality improvement, provision of recreational facilities, fish and wildlife conservation measures, and increased flows for downstream water users. These benefits, as discussed in the following paragraphs, were determined in accordance with their expected rate of accrual over the time as established by the estimated sequence of construction. All future benefits for each project were discounted to the present worth at the time of project completion and were distributed over the 100-year evaluation period in an equivalent annual series.

*Flood control.*—These result from the reduction of flood damages and the enhancement of flood-plain lands due to the protection afforded by the plan of improvement. Flood-damage-reduction benefits were determined as the difference between the estimated average anual damages with and without the projects. Land-enhancement benefits, expressed in average annual values, were based on the projected changes in flood-plain utilization resulting in higher type uses. The agricultural enhancement benefits were determined as the difference in net returns from protected and unprotected agricultural lands. The average annual nonagricultural enhancement benefit per acre was computed as 5 percent of the difference in net market value of protected and unprotected land. The flood control benefits were adjusted to reflect normal development of the area in the absence of the projects. The total average annual flood control benefits credited to the comprehensive plan of development are estimated to be $2,152,000, of which $1,589,000 are flood damage reduction benefits and $563,000 are land-enhancement benefits. These benefits are based on 1960 price levels.

*Water supply benefits.*—These would accrue to the comprehensive plan of development from the provision for immediate and future water-supply storage for municipal, industrial, and agricultural water uses. These storages would provide reservoir supplies for upstream needs as well as low-flow regulation for downstream water-supply needs. Water-supply benefits were estimates as the difference of cost in fulfilling the present and future water-supply needs of the basin by the proposed comprehensive plan of development and the most economical alternative method. The total average annual water-supply benefits credited to the comprehensive plan of development of the Cape Fear River Basin are estimated to be $1,200,000, of which 50 percent is municipal water-supply benefits, 33 percent is industrial water-supply benefits, and 17 percent is agricultural water-supply (irrigation) benefits.

*Water quality control.*—The low-flow regulation afforded by the plan will dilute wastes, thus improving the quality of water in the streams affected. In accordance with Public Law 87–88, 87th Congress, July 20, 1961, the estimated benefit produced is considered to be the benefit from water-quality improvement after adequate treatment is provided at the source by local interests. The water quality-control benefit from the comprehensive plan is estimated to be $255,000.

*Recreation.*—Recreation benefits are expected to accrue from the proposed water-resources-development plan in the two categories of general recreation and fishing and hunting. The average annual recreation benefits attributable to the

proposed project are estimated to be $1,137,000. These benefits were based on estimates of projected annual attendance and use of recreational facilities provided.

*Other benefits.*—In addition to the previously evaluated benefits attributable to the water-resources-development plan for the Cape Fear River Basin, certain intangible benefits which are not susceptible to direct monetary evaluation would be realized. The flood control provided by the plan would result in prevention of loss of human life in addition to the prevention of monetary damages. Flash floods which occur in the upper reaches of the basin, often with little or no warning, would be retarded and considerably reduced in magnitude by the proposed reservoirs. The relatively abundant supply of water in the Cape Fear River Basin has been a major factor in promoting the expansion of industry in the area, with investments in plants amounting to hundreds of millions of dollars. Other factors, such as the navigable portion of the river, the deepwater port of Wilmington, adequate labor supply, climate, and a wide variety of available sites, provide strong stimulation for continuing industrial growth. Industrial demand is now dangerously close to equaling the dependable water supply, and it is logical to assume that an increase in this supply will result in further industrial expansion in the basin. Improved water quality, in addition to its monetary value, would reduce local nuisances such as scum and odor and would provide an overall improvement in general sanitation and appearance of the streams. Navigation benefits, while not evaluated monetarily in this report, would result from the flood control features which would reduce navigation hazards prevalent during flood stages and reduce maintenance costs at the existing locks and dams. Land-treatment measures as well as the upstream reservoirs would tend to reduce the sediment load of the stream, resulting in decreased cost for maintenance dredging in the navigable channels. Additional benefits to the basin would result from the recreational facilities provided under the proposed plan. Sporting goods stores, motels, restaurants, and other commercial activities would develop to support the recreational activities of both the resident and nonresident population; however, these benefits would be secondary and have not been evaluated. Benefits to the general welfare, economy, and security of the people in the Cape Fear River Basin cannot be predetermined nor evaluated in monetary terms.

## CONCLUSION

It is submitted that all these facts, plus all data in the two volumes of the Corps of Engineers report, fully support the summary findings and recommendations of the district engineer, which summary is reproduced on the second page following.

And it is further, and finally, submitted that if construction of this projected dam is authorized and executed there will be a future day of new hope for millions of Americans in North Carolina.



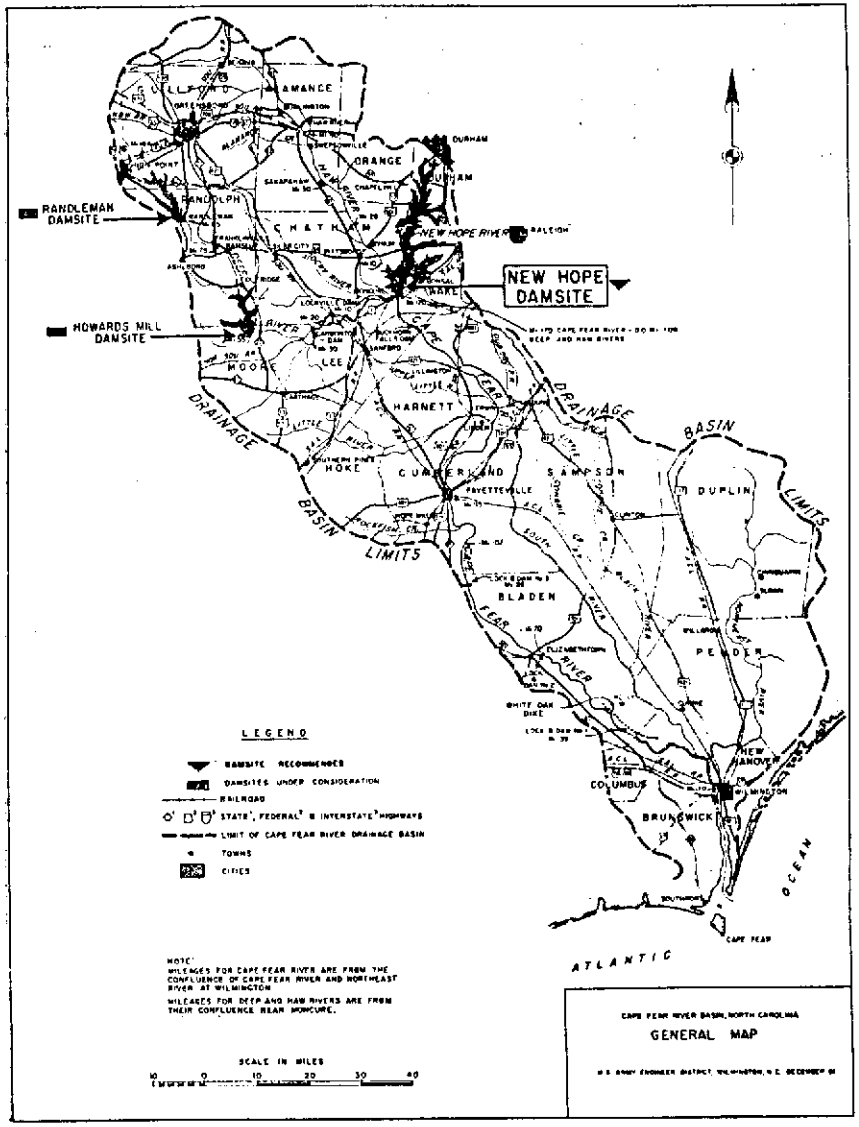
## SUMMARY

The District Engineer finds that there is an immediate and urgent need for improvements to provide flood protection, water-quality control, and recreation in the basin of the Cape Fear River, N.C. He also finds a strong need to provide storage for future municipal and industrial water supply and irrigation, and additional storage for flood control, water-quality control, and recreational needs to keep abreast of economic growth in this region. Without projects he estimates the average annual flood damages in the area over the next 100 years to be $1,736,000; he finds that the present minimum streamflow of 19 cubic feet per second at Lillington, N.C., is inadequate for present-day water-quality control, and that by the year 2065 the storage needs are estimated to be 1,844,000 acre-feet. He has determined that the most practical, feasible, and economic means for providing for the needs of the Cape Fear River Basin over the next 100 years is a plan consisting of reservoirs, local flood protection projects, and watershed-treatment measures. He has developed a general plan of improvement and sequence of construction which would include reservoirs on major and minor tributaries of the Cape Fear River above Fayetteville, N.C., and complementary conservation programs by other Federal and State agencies. Accordingly, as the initial step of development, he recommends construction at this time of the New Hope Dam located on the Haw River below the mouth of the New Hope River; and that further studies be made of the Randleman and Howards Mill Reservoirs sites and of other local flood control and water-supply reservoir sites to verify and/or modify the sequence of construction of the future projects so as to provide for the progressive development of the water resources of the Cape Fear River Basin. He further recommends continuous and vigorous action by Federal and non-Federal agencies in prosecution of programs for land management, controlling and regulating the use and development of flood plains, preservation and development of recreational and fish and wildlife resources, improvement of water quality, conservation of ground and surface waters, and selection and preservation of sites for the projects that comprise the ultimate plan. He notes that the recommended New Hope project would fit into any plan of development for the Cape Fear River Basin and should be the initial project to be constructed, and that it would prevent 72 percent of the average annual flood damages occurring in the Cape Fear River Basin and furnish benefits from water-quality control and recreation. He estimates that the total construction cost, at 1960 prices, of the New Hope project will be $25,612,000, with annual costs of $100,000 for operation, maintenance, and replacements, and that the average annual benefits will exceed the average annual costs by 170 percent.

*Summary of pertinent data for New Hope project—Concrete and earth dam, gated spillway*

| | |
|---|---|
| General: | |
| Miles above Wilmington | 173 |
| Drainage area at damsite, square miles | 1,690 |
| Streamflow: | |
| Average annual flow (estimated), c.f.s | 1,580 |
| Minimum monthly flow (estimated), c.f.s | 17 |
| Regulated flow, c.f.s | 600 |
| Maximum flow of record (estimated), c.f.s | 99,000 |
| Spillway design flood, c.f.s | 511,000 |
| Standard project flood, c.f.s | 258,000 |
| Reservoir: | |
| Maximum pool elevation (spillway design flood) | 250 |
| Standard project flood elevation, feet m.s.l | 245 |
| Maximum flood-storage pool elevation, feet m.s.l | 240 |
| Fee-taking line elevation, feet m.s.l | 240 |
| Area at flood-storage pool elevation, acres | 30,000 |
| Area to be acquired: | |
| Fee | 33,000 |
| Easement | 2,000 |
| Total storage volume to standard project pool elevation, acre-feet | 820,000 |
| Flood control storage volume, acre-feet | 541,000 |
| Conservation pool (top of pool 212 feet m.s.l.), acre-feet | 119,000 |
| Normal tail-water elevation, feet m.s.l | 159 |
| Minimum tail-water elevation, feet m.s.l | 158 |
| Tail-water elevation for spillway design flood | ------- |
| Dam: | |
| Length overall, feet | 1,220 |
| Length overall of spillway, feet | 340 |
| Top elevation of dam, feet m.s.l | 255 |
| Spillway crest elevation, feet m.s.l | 205 |
| Sluice capacity, c.f.s | 1,900 |
| Sluice diameter, feet | 6 |





Mr. LENNON. J. R. Powell, come around, please.

Mr. Chairman and gentlemen, J. R. Powell of Bladen County representing the Rural Electric Co-ops.

Senator Jordan. We are glad to hear from you.

Mr. LENNON. And speaking for across the State, I believe, Mr. Powell.

## STATEMENT OF J. R. POWELL, BLADEN COUNTY, REPRESENTING FOUR COUNTY ELECTRIC MEMBERSHIP COOPERATIVE

Mr. POWELL. I am J. R. Powell from Bladen County, and I speak for the Four County Electric Membership Association.

We have over 10,000 members, and this organization wholeheartedly endorses the full New Hope Dam.

Also the Star Telephone Membership Association located at Clinton, N.C., having a membership of over 2,300 also endorses the New Hope Dam.

The Tar Heel Electric Association representing 33 electric cooperatives of North Carolina endorses the construction of the New Hope Dam.

Senator JORDAN. Thank you very much, we are glad to have you with us, sir.

Mr. LENNON. Mayor O. O. Allsbrook, mayor of the city of Wilmington.

Senator JORDAN. Mayor, we are delighted to have you with us.

We will be glad to hear from you.

## STATEMENT OF O. O. ALLSBROOK, MAYOR, WILMINGTON, N.C.

Mr. ALLSBROOK. Thank you, Mr. Jordan, and members of the subcommittee. As mayor of the city of Wilmington we heartily endorse the project that you are hearing.

I have a current resolution dated March 12, 1963, that I would like to file.

Mr. LENNON. Of the city of Wilmington.

Senator JORDAN. That will be included after your remarks.

Mr. ALLSBROOK. Thank you, sir.

(The resolution referred to follows:)

RESOLUTION OF THE COUNCIL OF THE CITY OF WILMINGTON, N.C., RELATIVE TO NEW HOPE DAM ON CAPE FEAR RIVER

Whereas the District Engineer, Corps of Engineers, Wilmington, N.C., has prepared a comprehensive report on the Cape Fear River Basin; and

Whereas the Congress of the United States has before it the determination of the need for flood control in the said Cape Fear River; now, therefore, be it

*Resolved*, That the city council of the city of Wilmington urges the Congress of the United States to take favorable action relative to the aforementioned comprehensive report, prepared by the District Engineer, Corps of Engineers, U.S. Army, for the following reasons:

1. Adequate flood control by means of a dam at New Hope, at Randleman and Howard Mills, with a possible series of small dams, will favorably affect sanitation by way of pollution control of the Cape Fear River above Wilmington;

2. Favorable action on the New Hope Dam will improve navigation in the Cape Fear River between Wilmington and Fayetteville;



3. Favorable action on the New Hope Dam will improve navigation of ocean-going ships between Wilmington and the ocean; be it further

*Resolved*, That the city council of the city of Wilmington believes that construction of the New Hope Dam and other dams will so reduce flooding that siltation will be reduced between the city of Fayetteville and the ocean; be it further

*Resolved*, That the city council of the city of Wilmington believes that this flood control measure will favorably affect shipping in the harbor of Wilmington by reducing the river flood stages, thereby increasing safety for ships at anchor and at dock.

Done this 12th day of March 1963.

O. O. ALLSBROOK, *Mayor.*
MARY B. SUTHERLAND, *City Clerk.*

Attest:

Senator JORDAN. I would like to say to these members of the committee and members of the staff, if you haven't been to Wilmington during the azalea festival you ought to go down. It is one of the most beautiful sights in America. It is beautiful all the time.

Mr. LENNON. We extend an invitation from April 6 to 8, as of this moment, don't we, Mayor?

Mr. ALLSBROOK. Yes, sir; and I am sure you would enjoy it.

Senator JORDAN. Thank you.

Mr. LENNON. Mr. J. M. Hall, president of the board of county commissioners, this is Mr. J. M. Hall, chairman of the Board of New Haven County Commissioners of one of the counties in the flood basin.

## STATEMENT OF J. M. HALL, JR., CHAIRMAN OF BOARD OF COMMISSIONERS OF NEW HANOVER COUNTY

Mr. HALL. Thank you, Senator. I am J. M. Hall, chairman of the Board of Commissioners of New Hanover County and on behalf of the Board of New Hanover County Commissioners I have a resolution to offer that wholeheartedly endorses this New Hope project.

Senator JORDAN. Thank you very much.

Mr. HALL. I would like to have it included in the record.

Senator JORDAN. It will be included in the record at the conclusion of your remarks.

Mr. HALL. Thank you, sir.

(The resolution referred to follows:)

RESOLUTION

STATE OF NORTH CAROLINA,
*County of New Hanover.*

Whereas the Board of Commissioners of New Hanover County have followed with interest the legislation pending before the Congress of the United States relative to flood control on the Cape Fear River and are desirous of expressing themselves with regard thereto; and

Whereas the commissioners are cognizant of the favorable effect which this project will have, not only upon flood control, but also upon stream sanitation, navigation of the upper Cape Fear, navigation of the lower Cape Fear and prevention of excess siltation: Now, therefore, be it

*Resolved*, That the Board of Commissioners of New Hanover County urges the Congress of the United States to take favorable action on this project, in accordance with the plans and recommendations of the U.S. Corps of Engineers; and be it further

*Resolved*, That a copy of this resolution be spread upon the official minutes of this board and that copies hereof be delivered to the Honorable B. Everett Jordan and to the Honorable Alton A. Lennon for presentation to the Congress of the United States.

Done at Wilmington, N.C., this 11th day of March, 1963.

BOARD OF COMMISSIONERS OF
NEW HANOVER COUNTY,
J. M. HALL, Jr., *Chairman.*

Attest:
[SEAL]

M. G. HOUCK, *Executive Secretary.*

Mr. LENNON. Thank you.

Mr. Chairman, and gentlemen of the subcommittee, I would like to state that the substantial number of others present who ought to be identified—they made a several hundred mile bus trip, which demonstrates their interest and through the years their desire for the committee's approval and the subsequent ultimate approval by the Congress of the New Hope Dam, but I shan't trespass upon your time.

I think I should call to the attention of the members of the subcommittee that this project is endorsed by the Governor of North Carolina. He made an appearance yesterday before the subcommittee of the House, but he had to hurry back for a meeting in North Carolina. It is endorsed by the Board of Conservation and Development of North Carolina, a statewide public service organization. It is endorsed by the North Carolina State Stream Sanitation Commission, another State agency. It is endorsed by the Water Resources Commission of North Carolina, another State agency. And we want you to know that we are grateful for this opportunity to make this short presentation here—the other Members of Congress who are equally interested as I am in this matter.

Thank you, gentlemen.

Senator JORDAN. Congressman Lennon, for your information, and at the conclusion of your remarks and the remarks of the other Congressmen, the statement made by the Governor yesterday will be included in the record as well as my statement, the statement of Senator Ervin, and other documents, they will all be included in the record.

Mr. LENNON. Fine, thank you very much.

(The statements referred to follow:)

STATEMENT BY TERRY SANFORD, GOVERNOR OF THE STATE OF NORTH CAROLINA

Thank you for the chance to appear before this committee. I am here in support of a 100-year plan for the comprehensive development of the water and land resources of the Cape Fear River Basin in North Carolina.

This is a plan recommended by the U.S. Army Corps of Engineers for developing this great river and tributaries for flood control, water supply for municipalities, industries, and agriculture, water quality control and recreation. The foundation stone of this plan in the New Hope Reservoir. I am asking that you authorize this project so that development of the Cape Fear River Basin can proceed.

The need of the basin is great. Its people have waited a long time to develop and use their land and water resources at their full potential.

This project was started by Senator Kerr Scott and is being carried on by a number of people under the able leadership of Senator Everett Jordan. I have been interested in this project since the days when Kerr Scott was Governor. Speaking in Fayetteville on September 25, 1950, Governor Scott said:

"* * * with the entire Cape Fear Valley pulling together for the development of the Cape Fear River as a whole for the benefit of all, the voice would have been much louder * * * I say, here and now, that if we do not look forward, [illegible] these resources which are now wasting, we



will not only be breaking faith with future generations, but also cheating ourselves.

"The valley of the Cape Fear, stretching as it does more than 150 miles from the Piedmont to the sea, is potentially one of the richest regions of our State. It is rich in agricultural possibilities and offers great opportunities to diversified industry. All that is needed is vision and a singleness of purpose to bring about its development."

The truth of that is more apparent today than ever before.

This long broad valley reaching from the Piedmont area of our State down to the Atlantic Ocean has contributed greatly to the progress of North Carolina from colonial days to modern times. In this pleasant land live 922,599 people, 20 percent of our population. They have built up considerable industries, a strong agriculture, and attractive tourist facilities that are all known far beyond our borders.

The people of the Cape Fear River Basin has achieved these things despite a great handicap. Too many times destructive floods have hurt the area. These can occur at any season of the year and in a large part of the basin. The threat of floods is hindering the greater economic development which is the right of its people.

We are told that the Corps of Engineers plan will protect only the lower part of the basin and do nothing for the upper area. Yet the corps plan would permit the building of these smaller dams for local benefit; in fact, the corps recommends that its own project be supplemented by upstream improvements and land treatment measures, as provided by Public Law 566, 83d Congress.

I am in favor of building them all because in the future, we will need all the water we can get. This is one of the best investments we can make in the future. We should impound all the water we can at every feasible place. It will serve us well over the years. In North Carolina we are stepping up our soil conservation and small watershed program. The State legislature doubled the survey teams so we might accelerate the whole program. We are determined to save our water resources.

The alternative plan of nothing but small dams of and by itself cannot control flooding throughout the basin. Existing Federal legislation, in any event, is not adequate to put such an undertaking into effect.

Flood protection is needed now. We have waited too long. The Corps of Engineers plan, keyed by the New Hope Reservoir, can come into being almost at once.

Unfortunately, dislocations will occur to some extent each time a public works program is placed in effect, and I regret this. However, we cannot continue to progress as a nation unless we utilize our natural resources to their fullest extent and in the best interest of the greatest number of our citizens.

I concur in the recommendations contained in the report of the U.S. Army Corps of Engineers. As the initial step in the development of the basin, I strongly urge that authorization for the immediate construction of the New Hope Dam be given favorable consideration by your committee.

I assure the committee that the State administration will do everything within its capability to meet any non-Federal participation and cooperation that may be required in the construction of the New Hope Dam.

Thank you very much.

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STATEMENT BY SENATOR SAM J. ERVIN, JR., ON THE CAPE FEAR RIVER BASIN, N.C., WATER PROJECT

Mr. Chairman, during the 87th Congress, the sum of $100,000 was appropriated for a flood-control project in the Cape Fear River Basin in North Carolina. The appropriation was made contingent, however, on authorization by this Congress for such a project. It is for this reason that I appear before your subcommittee. Because of the merits of this project, I strongly recommend that it be included in any public works authorization bill which your committee may report this session.

Surveys, studies, and the documentary reports made by the Army Corps of Engineers over a period of years have stated the need for this project. These documents are available to the subcommittee for its information in a report entitled "Comprehensive Report on Cape Fear River Basin, North Carolina," originally dated October 30, 1961.

In essence, the Army Corps of Engineers in this report and in more recent statements has recommended the construction of three high dams for the control of waters in the Cape Fear River Basin. These dams would be located at How-

ards Mill, Randleman, and New Hope, N.C., as a part of a comprehensive flood-control project. Currently, the initial appropriation of $100,000 and the authorization sought from this subcommittee concern only the New Hope Dam. This authorization and appropriation would allow the beginning of advance engineering and design work on the New Hope Dam. The approval of this project would represent the first step toward the construction of the New Hope Dam at an estimated cost of $25,612,000.

The controversy which exists over the approval of this project arises in the main over rival plans submitted by the Army Corps of Engineers, plan A, embracing high-rise dams, and the U.S. Soil Conservation Service, plan B, embracing low-elevation dams.

After a full study of all the factors involved, I have reached the conclusion that the long-range interest of North Carolina will be best promoted by implementing the recommendation of the Army Corps of Engineers under plan A calling for a large dam to be erected on the New Hope Creek, a tributary of the Haw River.

In my judgment, the Army Corps of Engineers' plan provides the most practical approach to the long-range problems of flood control, water supply, and industrial development of a region recognized for its vast potential for economic growth.

The ever-present danger of floods in this area poses a problem which can no longer be leisurely debated. Moreover, the immense importance of fresh raw water for the nearby cities of Greensboro, Raleigh, Durham, Burlington, and Chapel Hill has brought a demand for fresh water supplies unknown only a decade ago. With respect to flood control and water supply, the Corps of Engineers has presented a sound, practical, workable, and economically feasible solution. In my opinion, it is strongly supported by the vast majority of North Carolinians.

For these reasons, I urge this subcommittee with all the emphasis at my command to take favorable action on this project.

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STATEMENT OF SENATOR B. EVERETT JORDAN

Mr. Chairman and members of the subcommittee: I want you to know that I am grateful for the opportunity to appear before you today in support of the recommendations of the Corps of Engineers in connection with the Cape Fear River Basin.

I know that many people have come here from North Carolina to offer testimony, and I will therefore make my remarks as brief as possible. With the approval of the subcommittee, I will file for the record along with my statement certain documents which I think will give the subcommittee a picture of the history of this project and of the widespread support it enjoys in our State.

The problem of controlling floods in the Cape Fear River Basin and developing the water resources of this vast area of North Carolina has been the subject of numerous studies dating as far back as 1927.

The program which is now before this subcommittee for consideration was recommended by the Corps of Engineers and the Bureau of the Budget, and it can be divided into three major parts: (1) The construction of the New Hope Dam as the key flood control structure for the overall basin; (2) the construction of intermediate size dams at Randleman and Howards Mill on the lower tributaries of the Cape Fear River to supplement the New Hope Dam; and (3) the construction of a network of small dams in the upper areas of the basin to supplement the New Hope Dam and to assist the fast-growing communities in those areas in meeting future water needs.

I think it needs to be emphasized in this hearing today that many alternate proposals, and combinations of proposals, have been explored and discussed over the years by the Corps of Engineers. In each case the New Hope Dam has been found to be the keystone in developing an effective flood control program for the basin. At one time, the Engineers studied the possibility of building a network of seven dams in the basin, and again the New Hope Dam was the key structure. It was found that it was impossible to get favorable benefit-cost ratios for the seven dams, so this combination approach was dropped.

As a result of the devastating flood in 1945 the Corps of Engineers initiated a new survey of the basin in 1946, but this survey was interrupted by the Korean war and was never completed. Shortly after he came to the Senate, my predecessor, the Honorable W. Kerr Scott, resurrected the Cape Fear survey in 1955.



Both as Governor of North Carolina and as a member of the Senate, Senator Scott was a strong supporter of the New Hope project and all of us are grateful for the tremendous amount of work he put into it. I would like to submit for the record a copy of a speech he made on September 7, 1955, at Corinth, N.C., only a few miles from the proposed site of the New Hope Dam.

In 1956 Senator Scott brought together representatives of the Corps of Engineers and the Soil Conservation Service and asked these two agencies to begin a joint study of the Cape Fear Basin. The record will show that he did this in the interest of giving all possible alternate suggestions full opportunity to be studied and at the same time avoid a long and drawn-out controversy which had been experienced in connection with the flood control dam near Wilkesboro on the Yadkin River, which incidentally, was fittingly named in honor of Senator Scott last year by the Congress.

Between 1957 and 1961 the Corps of Engineers and Soil Conservation Service conducted a joint study of the basin. Again, the Engineers found that an effective flood control program in the Cape Fear Basin hinged on a major structure at the New Hope Dam site.

The Soil Conservation Service concluded, on the basis of detailed study in five sample areas, that it would be theoretically possible to get a comparable degree of flood control by constructing a system of small and intermediate size dams throughout the basin. However, after these 4 years of study, the Soil Conservation Service reported that although it might be possible to approach the problem by constructing the 232 dams, further surveys costing at least $200,000 and taking at least 2 more years of time would be required before a realistic evaluation of this approach could be made.

During the past year there has been extensive discussion of the so-called plans A and B of the Corps of Engineers and Soil Conservation Service.

In essence, we have a situation where a "possible" plan by the Soil Conservation Service has been weighed against a specific and definite recommendation by the Corps of Engineers and the Bureau of the Budget, and supported by the State of North Carolina and every State agency having jurisdiction over water resources, in addition to widespread local support throughout the basin.

From the Corps of Engineers we have an estimate of cost of the New Hope Dam of about $24 million as against an estimate by the Soil Conservation Service of about $35 million for the 232 dams.

The New Hope Dam would inundate approximately 30,000 acres of land and the 232 dams would inundate approximately 72,000 acres of land.

The cost of the 232 dams is based only on flood control and irrigation requirements, while the dam at New Hope is based on flood control, recreation, fish and wildlife, and stream pollution abatement requirements.

I think it can be concluded from these facts alone that we have not only no valid estimate of the cost of the plan of 232 dams, nor do we have an estimate of the cost and benefits on requirements that are essential for a comprehensive plan of development.

However I think the joint preliminary study made by the Corps of Engineers and Soil Conservation Service has served a very good purpose.

During the time I have been in the Senate I have engaged in numerous conferences with representatives of the Corps of Engineers and the Soil Conservation Service, and I think these two agencies should be commended for the diligent work they have done in seeking out all possible alternatives and combinations of proposals for a really effective program for the basin.

Even within the past 3 weeks I have rereviewed the reports of these agencies and conferred with their representatives, and there is no doubt in my mind that the New Hope Dam is absolutely essential to any feasible program of flood control in the basis. On the basis of these discussions, however, I have come to the conclusion that it would be wise to make one adjustment in the Corps of Engineers recommendations.

The Engineers recommend that current studies should continue on the proposed dams at Randleman and Howards Mill as construction work proceeds on the New Hope Dam. It further recommends that at a later date surveys should be made of the upper tributaries, looking toward a network of small dams in the upper areas of the basin.

I would like to urge the subcommittee to adjust the recommended timetable in the Engineers report and direct the Engineers and the Soil Conservation Service to carry out a joint survey of the upper tributaries to proceed simultaneously with the construction of the New Hope Dam.

I strongly urge the subcommittee to spell out in the authorization measure authority for carrying on the three phases of the overall Cape Fear program at the same time. I think the joint survey of the upper tributaries could be carried on by the Corps of Engineers and the Soil Conservation Service with a specific authorization under the general provisions of Public Law 87-639.

It has been established beyond any doubt that it is not feasible to attempt to carry out a program of flood control in the overall basin through the Soil Conservation Service under existing law. To approach the entire basin development from the standpoint of small dams would require not only many more years of studies and surveys, but would also first require basic changes in our Federal water resource policies and laws, which in my opinion would be impossible to have enacted by the Congress.

I sincerely hope that both the Soil Conservation Service and the Corps of Engineers, as well as many sincere and dedicated people who have honest differences on the approaches to this problem, will endorse the suggestion I have made about developing the upper tributaries.

During the time I have been in the Senate I have spent more time and effort on trying to bring about the accomplishment of the Cape Fear project than on any other one single problem or project involving my state.

I have done this because I sincerely feel that the Cape Fear project will in large measure determine the future economic growth of North Carolina. In my opinion implementing this program recommended by the Corps of Engineers will bring about a period of economic growth in our State unmatched in our history. The very fact that the project has a benefit-cost ratio of $2.50 in benefits for every $1 in cost shows beyond any doubt that it will return to our economy many times over its cost. I fully appreciate the feelings of those whose homes and farms will be inundated as a result of the construction of the New Hope Dam. I have every sympathy with how they feel, but I think the economic future of our State is at stake, and I am certain that if 72,000 acres of land is inundated by 232 small dams, more people and more farms would be adversely affected than would be with only 30,000 acres affected by the New Hope Dam.

We have a sound, reasonable, and realistic recommendation before us. We can approve it and get on with the business of building the New Hope Dam, or we can argue and debate alternate proposals from now on.

In my opinion the greatest failure of all would be to let this project die and thereby let a great part of North Carolina's future die with it.

Thank you very much.

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SPEECH BY SENATOR W. KERR SCOTT AT CHATHAM-LEE COUNTY WILDLIFE CLUBS, CORINTH, N.C., SEPTEMBER 7, 1955

Mr. Chairman and fellow sportmen: There is no problem facing the American people more important than water conservation and flood control. These problems are universal throughout the Nation, as all areas have either too much or too little water, sometimes one and at other times the other. We alternate between droughts and floods, with both leaving devastation in their wake.

Right here where we stand today—in the heart of the Cape Fear River Basin—both of these extremes have been experienced from time to time. The most damaging Cape Fear flood was experienced in 1945, when damages estimated at close to $5 million. Official figures show that a flood crest of 68.9 feet was reached at Fayetteville, with at least 25 percent of the city under water, including some 1,500 homes.

As a result of this flood, the public water supplies of the cities of Burlington, Dunn, Erwin, and Randleman were cut off completely for several days. A total of 150,000 acres of rich farmland was inundated in the basin between the confluence of the Deep and Haw Rivers and the city of Wilmington. None of these figures include the damages suffered along the tributaries of the Cape Fear. A flood of like proportions today would cost may millions of dollars more than of 1945, because there has been a great expansion of industrial development and an increase in population as well as a general increase in property valuations in the last 10 years.

To become tame and hard working for the benefit of mankind, the Cape Fear and its tributaries await only the harnessing hand of man and his modern technical knowledge. We have the know-how. What we need is to put the know-how into action.

Now, there are many sides of the problem and challenge of conservation and [illegible] resources. And the benefits range from transportation to



irrigation, from flood control to industrial expansion, and from plenty of pure drinking water to recreation, to mention only a few.

Everyone, whether he lives in country, town, or city, has a vital stake in water conservation and development. Water—and plenty of it—is a necessary ingredient of life and of almost every activity in which a human being engages. Health, sanitation, and production of food and clothing are all dependent upon adequate supplies of unpolluted water.

Those of us who live along or near rivers—such as the Cape Fear—are prone to accept without question the words of the poet when he sang of all rivers: "Men may come, and men may go, but I go on forever." But let's remember that this poet wrote in an earlier age—in an age before man had invented power-saws and bulldozers capable of leaving naked and bare, in a few hours or days, huge hillsides that are robbed of the springs they once cradled and fed into the mighty river to keep it going.

The destructive and despoiling hand of man, ripping away trees and other blankets of vegetation on many of our watersheds, is drying up the mean or average flow of our streams and, just as bad, creating flood hazards of unbelievable fury.

Slowly but surely we are turning our rivers—including the mighty Cape Fear—into liabilities of savage extremes, low water at one time and devastating floods at other times. And, in this connection, engineers of the U.S. Army have said that one dam—just one flood control dam—located on New Hope Creek near Moncure, would have the positive effect of reducing the Cape Fear flood heights at Fayetteville by 10 feet in a flood such as that of 1945.

We are beginning to pay the penalty of not having a sound and dynamic water conservation and development program, on the local, State, and Federal levels. Government—at all levels—has a direct and compelling interest and responsibility in the problem both as it relates to adequate supplies of unpolluted water and flood control.

Private industry also has a responsibility in some phases, and when the solving of a particular problem does not fall within the limits of what is proper or possible for private industry to undertake, it should be undertaken and solved in the overall public interest by the appropriate governmental agency. The ever-present problem of water pollution is largely the responsibility of the State, and the pollution problem should in every instance be regulated at the lowest possible governmental level adequate to meet the individual situation involved.

I firmly believe that while full development of the water resources of the United States as to agricultural needs, urban domestic use, and industrial use are in the national security interest, they must not become solely the functions of the Federal Government. The Federal Government should do those things in the field of water development and conservation which are essential to the national defense and security and which are beyond the resources of private industry and lesser Government agencies.

Recently, under my sponsorship, the sum of $21,400 was appropriated to the Army Engineers to complete its survey started in 1946 of the Cape Fear to determine steps which should be taken to bring about the construction of the three dams in the Cape Fear River Basin. The largest of these proposed dams would be on New Hope Creek with the dam near Moncure in Chatham County just below the point where New Hope Creek runs into Haw River. The second would be on Deep River with the dam near Randleman in Randolph County; and the third on Deep River with the dam at Howards Mill in Moore County.

This proposed project would be of incalculable value to the State in terms of increasing sources for municipal water supplies, in terms of irrigation for farmers in the basin, and in terms of public recreation.

This last major benefit which would arise from construction of these reservoirs is the most intangible one, and the hardest to measure—public recreation—but its importance to the health and welfare of our people has been increasingly recognized in the last few decades. The recreation benefits of the reservoirs in the Cape Fear project, because of the heavy population in the areas surrounding the lowlands and swamplands of New Hope Creek and the Deep and Haw Rivers, would be particularly important. The western and mountain areas of North Carolina have Fontana and other lakes close by and, of course, the eastern population has the beaches and waters of the Atlantic Ocean, but the larger portion of east-central and Piedmont North Carolina is too far removed from these attractions.

Any discussion of flood control at this time would be lacking if mention were not made of the terrible havoc recently visited upon New England by torrential rains and swollen rivers. All of us have been distressed to learn of the widespread damage and loss of life caused by the New England tragedy. All America is extending its sympathy and offering emergency assistance in the affected areas. This is as it should be, but I think we ought to learn a lesson from what has happened.

In this connection, I have been impressed by reading of the lack of vision of the political and business leadership of New England back in 1936 when it was proposed by President Roosevelt that a series of flood control reservoirs be constructed to prevent just what has recently happened.

In 1936, another year in which the Connecticut and Merrimack Rivers of New England flooded, and inflicted direct property damage in excess of $53 million, Congress, at the urging of President Roosevelt, passed the Flood Control Act of that year authorizing the expenditure of $315 million for flood control dams in 40 States.

Included in the measure was $7,725,000 for the construction of a system of flood control reservoirs in the Merrimack River basin, and $10,028,900 for the construction of a system of flood control reservoirs in the Connecticut River watershed basin.

But the six New England States would have no part in flood control unless Congress agreed to give them special rights not enjoyed by the people of the other 42 States. An interstate compact was entered into and the president of the New England Council, representing the dominant banking, industrial and utility interests of the six States, warned, and I quote him:

"The Federal Government may rest assured that New England will sacrifice the benefits of flood control" * * * unless given full control over any waterpower which might be generated incident thereto.

Both President Roosevelt and the Congress refused to bow to the demands of the New England compact States for special privileges not allowed in other parts of the Nation.

Conservative estimates of the total damage done by the recent floods in New England are about $1½ billion—damage that might well have been avoided had New England leadership not taken a dog-in-the-manger attitude some 20 years ago by refusing to permit the construction of less than $20 million worth of flood control dams.

Already the Federal Government in Washington has allocated $100 million to help repair damage and the end is not yet in sight.

I hope that when Congress reconvenes in January, and the question of adequately meeting the recent flood emergency in New England arises, there will be no haggling attempts made to tear down the structure that has worked so well in the rest of the Nation.

In the days ahead I shall be found in the ranks of those supporting any and all measures for providing adequate flood control of all our great river basins.

Here in North Carolina, the Cape Fear River is our No. 1 water problem and challenge. We can let it degenerate us, or we can let it help make our lives fuller and more productive.

Regardless of the tangible benefits we get from it ourselves, let's see to it that future generations can never say we were sitting on the sidelines.

And in the final analysis, I feel certain that this river's greatest contribution to man can be found in the following quotation that carries a message for all of us:

"When you take a boy fishing, you don't have to go hunting for him."

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STATE OF NORTH CAROLINA,
DEPARTMENT OF WATER RESOURCES,
*Raleigh, N.C., February 1 1962.*

Senator B. EVERETT JORDAN,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR JORDAN: A meeting of the North Carolina Board of Water Resources was held at Raleigh, N,C., January 31, 1962.

Mr. Glenn M. Tucker, a member of the board, asked the director of the department of water resources to comment on the comprehensive report on the Cape Fear River basin, prepared by the District Engineer, U.S. Army Engineer



The director and Mr. Henry C. Wolfe, chief of the division of navigable waterways, explained the report in detail.

After considerable discussion by various members of the board, Mr. Tucker moved, and the motion was unanimously adopted, that the board of water resources support the report submitted by the U.S. Army Corps of Engineers, and specifically the recommendation for immediate construction of the New Hope Dam.

With all good wishes, I am,
Sincerely yours,

HARRY E. BROWN, *Director.*

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STATE OF NORTH CAROLINA,
WILDLIFE RESOURCES COMMISSION,
*Raleigh, N.C.*

Memorandum to: The Honorable Members of Congress from North Carolina.
From: The North Carolina Outdoor Writers Association.

At its annual spring meeting on April 29, 1962, the North Carolina Outdoor Writers Association passed the following resolution:

Whereas it is the considered opinion of the members of this organization that the New Hope River flood control plan proposed by the U.S. Corps of Engineers would better serve the interests of the people of North Carolina than the plan proposed by the U.S. Soil Conservation Service: Be it

*Resolved,* That, the North Carolina Outdoor Writers Association endorse the plan of the U.S. Corps of Engineers and urge its early activation by the U.S. Congress.

DICK PIERCE,
*President, North Carolina Outdoor Writers Association.*

Senator JORDAN. Thank you very much.

Will Congressman Henderson come up?

Congressman Henderson is from the Third District. If you have some witnesses we will be glad to hear your witnesses following, you, sir.

## STATEMENT OF HON. DAVID N. HENDERSON, A REPRESENTATIVE OF THE HOUSE OF REPRESENTATIVES OF THE THIRD DISTRICT OF THE STATE OF NORTH CAROLINA

Mr. HENDERSON. Thank you, Mr. Chairman, I have a brief statement. I do not believe there are any witnesses from my district that were able to remain over for your session today.

Mr. Chairman and distinguished members of the subcommittee, I am Congressman David N. Henderson representing the Third Congressional District of North Carolina. Four of the counties that I represent; namely Harnett, Pender, Sampson, and Duplin, lie within the Cape Fear River Basin downstream from the proposed New Hope Dam project. The county of Harnett is to the north of Cumberland County and the city of Fayetteville. The other three counties lie to the south, but north of New Hanover County and the city of Wilmington.

The damages from the flood conditions on the Cape Fear River as explained by the Corps of Engineers have been most extensive in these four counties. None of these counties has any great industrial development, but rather are leading agricultural counties of North Carolina, and the frequent floods in the great Cape Fear River Basin have resulted in severe crop losses over the years.

As a member of the House Public Works Committee, I was much impressed by the suggestion of your distinguished chairman and our colleague from North Carolina, when yesterday he urged the House

Flood Control Subcommittee to "direct the Engineers and the Soil Conservation Service to carry out a joint survey of the upper tributaries to proceed simultaneously with the construction of the New Hope Dam."

Mr. Chairman, as I understand your recommendation, you suggest that the Congress authorize the construction of the New Hope Dam during this session, and simultaneously, that such authorization measure spell out that the Corps of Engineers and Soil Conservation Service proceed with a joint survey and early construction in the upper tributaries.

Witness after witness yesterday, in response to the question of the acting chairman of the House Flood Control Subcommittee, vigorously supported what we understood was your recommendation.

I would like to make my position crystal clear. We in this session should authorize the Corps of Engineers to construct New Hope Dam as fast as appropriations are made for this project. Secondly, we should take simultaneous action to direct the development of the tributaries of the Cape Fear River by the Soil Conservation Service with the greatest speed possible under their authority and within their appropriations.

In conclusion, I would like to point out to this distinguished subcommittee that it seems to me that the major opponents to the Engineers' plan are now somewhat reluctant to express their opposition in clear terms. They now seem to say that they are in favor of comprehensive development of the Cape Fear River basin, that everything should be done at once, that everything should be done to make everybody happy, but finally proposed that this matter should be further studied and further delayed.

Gentlemen, I must say that in my opinion anyone who contends that the New Hope Dam should not be built at the earliest possible date, that anyone who now contends further study and delay should be undertaken, is opposed to do anything to alleviate the flood control problems of the Cape Fear basin. We are not being fair to the people of North Carolina who now recognize we cannot longer delay a frontal attack on the flooding conditions that not only exist on this Cape Fear River, but on the other great streams of our State such as the Neuse River.

I would conclude by pointing out to the members of the subcommittee that this basin lies on the west side of my congressional district, and the Neuse River lies to the east.

Gentlemen, for the last 2 years in an area that is between these two great river basins, it has been my sad experience to have gone through thousands of acres of tobacco land that were completely inundated. I realize the great tragedy of people who are displaced by large reservoirs and large dams.

Gentlemen, on July 4 of last year, after a 14-inch rain in 72 hours, I can tell you that many of my people were temporarily displaced and they are suffering at this time because they were not able to make a crop, and this is not only our livelihood but it is our way of life.

Thank you, Mr. Chairman, for the opportunity to present my views at this time.

Senator JORDAN. Thank you very much, Mr. Henderson. We appreciate your coming over. Do you have anyone you wish to testify



I know you had a number of people here yesterday. Anyone you would like to introduce?

Mr. HENDERSON. Mr. Reams, would you come up, sir?

Frank W. Reams. Mr. Reams, would you identify yourself for the committee, sir?

## STATEMENT OF FRANK W. REAMS, CHAIRMAN, NORTH CAROLINA DELEGATION, NATIONAL RIVERS AND HARBORS CONGRESS

Mr. REAMS. I am Frank W. Reams, chairman of the North Carolina delegation of the National Rivers and Harbors Congress.

Mr. HENDERSON. Mr. Reams, would you like to present any testimony to the subcommittee this morning?

Mr. REAMS. Yes, sir, I will be glad to. For a long time with our delegation I worked for river development in North Carolina. It has been my privilege to have been serving on this committee about 10 years, close to it. At the present time, I am living with the Cape Fear River Basin Association, maybe I should not go too far afield, but I might say this, that we have lived through similar problems like this in the Roanoke River Basin Association.

We have had friction between two groups, upper and lower. It was terrific at that time, and I might say at the present time that the chairman of the Water Resources and the Land Resources program or the Basin Association of Roanoke River, and those two groups in Virginia and North Carolina, are now very, very friendly.

At one time they had considerable friction similar to what is happening—I say friction, difference of opinion—and they are now all in harmony and they get along fine. As you recall, we had a similar situation existing up in the Wilkesboro Reservoir which is now the Scott Reservoir. That situation was solved here without going too, too much to do about that thing, solved by a conference, and a lot of other folks got together, and we worked over that considerably and in cooperation with the members of Congress here and the people of North Carolina that situation was solved.

Now, the program is in full effect, and I was mighty proud to attend a dedication of that program some months ago. Those people are happy with the situation. Where friction existed in that situation which was terrific. I understand the situation down in New Hope valley, I was born right close to it, I know the people there very well, some of them are my friends, and my home is still located close to this area and will almost be affected by this project.

I am saying these things to give you a little history about these things. I am speaking extemporaneously with no prepared talk. I want to say this that the Corps of Engineers program is a recommendation of our delegation to the National Rivers and Harbors Congress. We have discussed this thoroughly on numerous occasions, and we are in hearty accord, we will heartily cooperate with the Corps of Engineers.

I want to say this, too, that the Soil Conservation Service is a fine organization. They have a part to play in this program also. Their part will be to take care of the tributaries and it is a great field there for them. At the present time in the Roanoke River Association we are now asking the cooperation of the Soil Conservation and other agencies to help with the tributaries in the Roanoke and the map has

been prepared in Roanoke to show all the watershed programs that are available and potential programs that could be instigated and started.

I want to say this at this time. That we are for the Corps of Engineers program, our delegation is. We think it is the thing to do. This is a way to expedite the matter, to get the cooperation of people in 232 small areas would be terrific. I want to say this after yesterday's meeting—I talked to six farmers in the area to be affected, and the land to be covered. I asked these people, "Have you been contacted? Has anyone seen you? Has anyone come to see you to find out if you would be willing to continue under Public Law 566 and cooperate with the watershed program?"

And neither one of them said that a single person had seen them; had not made contact with them; no one has surveyed their thoughts. They only had public meetings and people from various areas talked about it. Not a single person had contacted them. That was a surprising situation to me, to find if they would cooperate, with what type program, when those surveys had been made actually upon the ground, with their signature of approval; it was surprising.

May I say this: It is a great thing that you folks are doing here in cooperating with the watershed programs, and with the entire stream and control programs. It is the future of us. We need those programs. We need the cooperation of everyone, and a large dam program in my opinion, and in the opinion of our delegation, is the key to the whole situation.

Mr. HENDERSON. Thank you, Mr. Reams.

Mr. Chairman, thank you so much.

Senator JORDAN. Thank you.

Mr. HENDERSON. I believe Mr. Whitfield was here yesterday and testified yesterday. And with the permission of the committee I would like to submit his statement.

Senator JORDAN. We have his statement and we will include it in the record.

(The statement referred to follows:)

RESOLUTION OF THE NORTH CAROLINA STATE STREAM SANITATION COMMITTEE CONCERNING THE PROPOSED NEW HOPE RESERVOIR PROJECT IN THE CAPE FEAR RIVER BASIN

Whereas the need for effective measures for controlling floods and otherwise developing the waters of the Cape Fear River Basin for their maximum reasonable protection and beneficial uses of the region has been the subject of study by the U.S. Army Corps of Engineers and others concerned since 1927; and

Whereas such studies have clearly demonstrated the need for effective flood control measures to prevent excessive property damage and possible loss of life, and that storage reservoirs constitute the only practicable means of flood control for the river basin; and

Whereas a joint study by the U.S. Army Corps of Engineers, the Soil Conservation Service, and the State of North Carolina initiated in July 1959 and completed in December 1961 concluded that the Cape Fear River and its tributaries produce major flood damages, and the the recurrence of a flood having the magnitude of the September 1945 flood, during which 313,000 acres were inundated, would result in flood damages amounting $9.3 million along the main stem of the river below the confluence of the Haw and Deep Rivers with the major damages to urban property being at Fayetteville where it is estimated that damages of $4 million would occur; and

Whereas the joint report presents alternate plans; namely, plan A of the U.S. Army Corps of Engineers which envisions the construction of the New Hope [illegible] Soil Conservation Service, which involves the construction of a system of 232 small- and intermediate-size reservoirs, without recommending the adoption of either plan in the interest of flood control; and



Whereas the U.S. Army Corps of Engineers in a comprehensive report, issued October 3, 1961, found there is immediate and urgent need for improvements to provide flood protection, water quality control, and recreation in the basin, and that such project should include storage for future municipal and industrial water supplies, low-flow regulation, irrigation, and recreational uses in order to keep abreast of expected population and economic growth in the region; and

Whereas the low-flow regulation features of the proposed New Hope project would provide 72,000 acre-feet of storage and would result in tangible benefits totaling $108,300 annually; and

Whereas the comprehensive report has been reviewed and adoption recommended by the Board of Rivers and Harbors, and construction of the New Hope project can begin as soon as funds are appropriated by the Congress, while it is obvious that changes would have to be made in the Federal law to enable the construction of the 232 small- and intermediate-size dams proposed in plan B of the joint study, which legal changes would, in the opinion of qualified observers, require several years, if feasible at all; and

Whereas the Honorable Terry Sanford, Governor of the State of North Carolina, in a public statement on December 26, 1961, stated he had reviewed the comprehensive report of the Cape Fear River Basin, prepared by the U.S. Army Corps of Engineers, and had concluded that the immediate construction of the New Hope Dam is economically feasible and in the best interest of the region, State and Nation: Now, therefore, be it

*Resolved*, That the State Stream Sanitation Committee of North Carolina, meeting in Raleigh, on April 6, 1962, concurs in the proposed plan for the development of the Cape Fear River Basin as presented by the U.S. Army Corps of Engineers, including the immediate construction of the New Hope Dam on Haw River, and recommends that Congress authorize its construction together with the associated projects at Randleman and Howards Mill on Deep River; and be it further

*Resolved*, That a copy of this resolution be forwarded to the Governor of the State of North Carolina and to all Members of Congress from North Carolina.

J. V. WHITFIELD,
*Chairman.*
MRS. KARL BISHOPRIC,
*Vice Chairman.*
W. L. CORBIN,
H. GRADY FARTHING,
P. GREER JOHNSON,
W. GRADY STEVENS,
T. B. UPCHURCH, JR.,
*Committee Members.*

Senator BOGGS. Mr. Chairman, before we proceed, I have an appointment at 11:30 and I want to say I will have to excuse myself. I want to compliment you on the fine manner in which you have presided at this hearing and certainly say I have been impressed with the fine testimony of the witnesses I have heard. I am very much interested in this watershed work, as you know, and there is much to be done, I am sure, throughout our Nation on it.

One of the points of interest that I have in all of these watershed programs, and not only in this one, but I shall endeavor to press it on every other project that comes up that may be appropriate for its consideration, is to ask the Corps of Engineers, and I would like to ask now, if they would, Colonel Marshall, if they would undertake to submit your views and costs, having in mind some modern techniques and materials that might fit, I don't say that it does fit this project, but that might fit this project.

You recall this committee had some hearings last year on new materials and techniques that would kind of point the way, I believe, if they could be used in appropriate projects—and is consideration be-

ing given to them—to accomplish a great deal more in our watershed and conservation work at great reduction in costs.

I would like, I will be glad to talk to you personally in more detail about it, and get it in writing to you, but I would like to see if we couldn't come up with a study showing these modern materials and techniques, new techniques couldn't be used in such a propect as this or show why they aren't suitable for such a project as this.

Do I make myself clear on that, sir?

Colonel MARSHALL. Yes, Senator Boggs.

During the preconstruction planning phase of the New Hope project as with all our projects we make a general design memorandum and make specific cost estimates and studies of construction techniques. You and the committee may be assured that in this detailed design period we will take advantage of whatever knowledge is available at that time.

Further, I will provide for the committee a statement to this effect, sir.

(The information referred to is as follows:)

The Corps of Engineers carries on a continuing program of investigation of new materials, new devices, and new designs. Results of these investigations are put to use in the planning, design, construction, and operation of civil works projects. As planning and design of the Cape Fear River Basin projects progress, we will make fullest possible use of new developments which apply to these projects.

Senator BOGGS. Very good. Thank you.

Mr. Chairman, may I make one other request before I go?

Senator JORDAN. Yes, indeed.

Senator BOGGS. Mr. Williams, Mr. Hollis Williams or Mr. Carl Brown.

Mr. BROWN. Senator, I should have said at the opening of my remarks that Mr. Williams was unavoidably detained today and I presented the remarks for him.

Senator BOGGS. Thank you, Mr. Brown. I wanted to ask if you could file with the committee—I am interested in this, because I recognize the great job throughout the country that is being done in soil conservation work—in the statement which you read you mentioned on page 5 specifically a joint report on a coordinated program should provide for the Department of Agriculture to have responsibility for accelerated land treatment for soil conservation and other purposes.

I was wondering for my own information and maybe it would be helpful to the committee, if at your convenience you could provide a statement amplifying what you really have in mind about that?

Mr. BROWN. I would be very happy to do that.

Senator BOGGS. That would be very helpful to me, Mr. Chairman.

(The statement referred to is as follows:)

STATEMENT OF CARL B. BROWN IN RESPONSE TO REQUEST OF SENATOR BOGGS WITH RESPECT TO THE NEED FOR ACCELERATED LAND TREATMENT PROGRAMS IN RIVER BASIN DEVELOPMENT

The sediment load of many of our principal rivers and their tributaries is excessive because of accelerated soil erosion on upstream watershed areas. This sediment load frequently impairs the use of the waters for municipal and industrial needs. It requires the use of costly processes for its removal. It also reduces the value of the waters for fish and wildlife and for recreational use. A major part of this sediment settles in costly reservoirs reducing their capacities to store water for the purposes for which they are intended.

Soil and water conservation practices applied on individual farms and ranches and other rural lands within the river basin are essential to protect reservoirs and other water resource developments. Land development, use, and conservation are directly related to water management. A comprehensive plan for the development of the water resources of a river basin should therefore provide for the concurrent applications of land treatment measures as the water resource developments are constructed.

Beginning in 1937 the States passed laws that authorize landowners and operators to organize and govern soil conservation districts. These local subdivisions of State government are dedicated to planning and applying soil and water conservation measures on watershed lands. The Department of Agriculture provides technical assistance to these districts to help them carry out this program. These districts provide a ready means to apply the needed conservation practices which wil protect the reservoirs which would be constructed to meet the water resource development needs of a river basin.

For a successful water resource development project the land in the drainage area must be used within its capability and soil and water conservation practices applied according to its needs for protection and development. These practices may include terracing, strip cropping, waterways, and the management of crops and pastures to reduce sheet erosion. Other practices such as the building of diversions, lining channels, stabilization of road banks and fills, tree planting, and improvements to reduce and control the damages from forest fires.



Senator JORDAN. I am sorry Senator Boggs from Delaware has to leave. He is one of my good friends and one of the finest Senators in the Congress, and I appreciate your coming.

Senator BOGGS. Thank you very much, Mr. Chairman.

You mentioned Wilmington and azaleas. It reminded me of my own hometown in Wilmington, Del. We are getting a few azaleas up there. I think we are getting them from your home State. We are all very proud indeed of our presiding chairman this morning who does a wonderful job and both of the great U.S. Senators from North Carolina. It is a privilege to serve with him. I have served with him on several committees since I have been here and proud to do it.

Senator JORDAN. Thank you very much.

Senator BOGGS. I apologize for having to leave.

Senator JORDAN. That is all right.

Congressman Kornegay, from the sixth district—and any witnesses you have—we will be glad to hear you and we will be glad to hear them.

## STATEMENT OF HON. HORACE R. KORNEGAY, A U.S. REPRESENTATIVE FROM THE SIXTH CONGRESSIONAL DISTRICT OF THE STATE OF NORTH CAROLINA

Mr. KORNEGAY. I have a prepared statement which I will not take the time of the subcommittee to read.

Senator JORDAN. It will be placed in the record following your remarks.

Mr. KORNEGAY. Mr. Chairman, and members of the subcommittee, I am Horace R. Kornegay, Representative from the Sixth District of North Carolina.

My district is composed of four counties. It is the smallest in area that you have in the State—it has a population of over 500,000 people, though—and is in the head, at the head, or the top of the Cape Fear

River Basin, of the two major tributaries that make up the Cape Fear River head up in within about 15 miles of my home, that is the Deep River, and the Haw River.

Now we are a rather thirsty district up there in that we have over 500,000 people, we have a heavy and varied industrial complex, and frankly, sir, our water resources certainly are not abreast to the tremendous population and industrial-commercial explosion that we are experiencing.

I am here today to endorse wholeheartedly and offer my support to the plan, or plan A as advanced by the U.S. Corps of Engineers, and feel that it would provide flood control and vital water resources and to some extent recreation for that area of the State.

Now, Mr. Chairman, all of the civic and commercial or civic and governmental bodies of the sixth district who have formally communicated with me about this project favor plan A. I have had a few, and a very few letters from individuals opposing the plan; candor and honesty compels me to state that I have had an expression of opposition from one county grange in my district. That county grange endorses plan B.

Otherwise the consensus of opinion as it has been conveyed to me is overwhelmingly in favor of plan A.

I would just like to say, Mr. Chairman, as has been stated by my other colleagues, who have testified here today, that I am in no manner callous or indifferent to the fact that there will be a displacement of persons with the construction of the large dam. I am very much distressed over that fact, and have great sympathy for those who, if the dam is constructed must, of course, be displaced and leave their homes.

But, unfortunately, this is the sort of situation that is ever true in the achievement of progress.

Of course we would have no railroads or airports, highways, and things of that sort, which have brought us great advancement if it didn't inconvenience some of the people.

Now plan A is available and it is feasible. Here we have a full dress report from the Engineers. We know the land to be inundated. It is about 30,000 acres. We know how many people will be displaced. We know the cost-benefit ratio or cost-benefit factors for flood control, industrial and municipal water supply, stream-pollution control, and recreation. Also, we would be conforming to the orderly pattern of development of our large rivers, and the further developments of the river basin complexes in our State.

I would like to point out at at this time with emphasis and underline the fact that plan A and plan B, that these two plans are in nowise mutually exclusive.

Under present authorities, and as suggested by the honorable chairman of this committee yesterday who testified before the House, the series of small watershed dams may also be built, and I heartily urge that such construction be undertaken through local initiative with available Federal assistance as complementing the New Hope, Randleman, and Howards Mill dams.

The combination of three dams recommended by the Engineers, and series of small watershed dams recommended by the Soil Conservation Service would be eminently desirable and would represent [illegible] pooling of local, State, and Federal cooperation and effort.



But, of course, we must keep first things first, and the New Hope Dam is the foundation stone of the dominant need on which all other construction must hinge.

Mr. Chairman, after experiencing the hearings yesterday and hearing and listening to most of the witnesses, I concluded that the proposition sort of boils down and everybody seemed to be almost in agreement that it was, that the combination of the two plans, was probably desirable. We need them at this time, and I urge upon the subcommittee the authorization of the New Hope Dam. That project, as planned by the Corps of Engineers, that project has been studied, surveys have been made. It has passed with approval all of the necessary governmental agencies and is here in the lap of the Congress for authorization.

After you analyze the testimony and the evidence in this case, it simply appears to me and does appear that this sort of boils down to the fact that it is in this generation anyway, it is the big dam or no dam, and the people want and need a dam. So I would like to urge that the subcommittee very carefully, after studying this matter, authorize the immediate construction of the New Hope Dam and further authorization or whatever the procedure would be, a continuing study of the discussion of the plan of the Soil Conservation Corps in the small watershed dams in the upper tributaries of the Cape Fear River.

It has been a pleasure to testify here this morning and to have this opportunity, Mr. Chairman, and I would like at this time to recognize one individual and to introduce a short statement for another.

I would like to recognize at this time Colonel Brown, who is director of the North Carolina Water Resources Department.

Colonel Brown, if you will just stand, please.

Senator JORDAN. Colonel Brown, we are glad to have you, sir.

(Representative Kornegay's statement is as follows:)

STATEMENT OF HON. HORACE R. KORNEGAY, A U.S. REPRESENTATIVE FROM THE SIXTH CONGRESSIONAL DISTRICT OF THE STATE OF NORTH CAROLINA

Mr. Chairman and members of the subcommittee: I am privileged to stand before you today in ardent and unalterable advocacy of the pending legislation to develop the Cape Fear River Basin in North Carolina in accordance with the plan advanced by the U.S. Corps of Army Engineers, known as plan A, which has been approved by all Federal and State authorities, as required by law. This plan is endorsed by the Governor of North Carolina, the two Senators from North Carolina, all North Carolina House Members whose districts will be affected by the project, save one; all governmental bodies in the State having jurisdiction over water problems and resources, including the State board and department of water resources and its State stream sanitation committee, the State board of conservation and development, and the North Carolina delegation to the Rivers and Harbors Congress.

The Cape Fear River, which with its major tributaries is the body of water with which we are here concerned, could well be called the Mississippi River of North Carolina. It is the longest river in our State, meandering from the Piedmont section to the Atlantic Ocean. This great water potential for our State has too long been allowed to go unharnessed and undeveloped. The project which I am here endorsing is the solution to the development and full realization of the many industrial, farming, and commercial capabilities of this rich and pleasant river valley area of the Cape Fear.

In my own Sixth District, comprising the four counties of Guilford, Alamance, Orange, and Durham, this project has vital implications which have generated a widespread and deep interest. We are a thirsty district, for into our area of 1,782 square miles is packed a population of over 500,000 people and a heavy

and varied industrial complex. Our water resources are not abreast of our tremendous population, industrial, and commercial explosion.

Unless the three dams contemplated in plan A are built, the vital water resources of my district, largely from the Deep and Haw Rivers, two of the major tributaries to the Cape Fear, are destined to flow uselessly into the confluence point of this great river only to provide flood waters for the farmlands of the lower reaches of the Cape Fear River Basin. We are somewhat in the same plight as the Ancient Mariner, whose despairing cry was, "Water, water everywhere nor any a drop to drink."

Water, we know, has a dual aspect—it can be both a bane and a blessing. Out of control it can do untold damage; controlled in an even flow and with proper reservoir facilities it can indeed be a blessing and a means to a better life for all our people. This blessing and the erasure of this bane can be attained by the authorization of plan A.

Thus the development of the Cape Fear River Basin according to plan A will accomplish two great purposes of flood control and preservation of water supply. A third objective is properly sought in the creation of vitally needed outdoor recreational facilities for our people, an aim certainly consonant with the President's current emphasis on physical fitness for our Nation.

All the civic and governmental bodies of the Sixth District who have communicated with me about this project have favored plan A. I have had a few—a very few—letters from individuals opposing the plan. Candor compels me to state, however, that I have received an expression of opposition from one county grange in by district, through its lady officials, who endorsed plan B. Otherwise, the consensus of opinion as conveyed to me is overwhelmingly in favor of plan A.

At this juncture, let me earnestly say that I am in no manner callous or indifferent to the fact that persons will be displaced by the construction of the large dam. I am deeply distressed that this is the case. Unfortunately it has been ever true that the achievement of progress is accompanied by displacement and dislocation; otherwise we would have no railway networks, no airport installations, no highway arteries farflung and dispersed throughout our country. Without public rights-of-way we would have no power or telephone lines.

The whole complex of transportation and communication services which our people have came to expect and demand would be stymied and immobilized. In our goal to attain a more convenient and comfortable mode of life, it is often necessary for the few to make sacrifices for the good of the many. And here I am constrained to remark that while the large dam project will displace some of our citizens, who will be reimbursed for their losses, the plan calling for the construction of 232 small dams will necessitate donations of land from owners, under existing legislation, with no provision for compensation.

Mr. Chairman, I should like to tell you briefly why I oppose plan B. First, I believe it would take at least another generation to see the 232 small and intermediate sized dams constructed. Changes would have to made in existing Federal laws to use this approach, and special legislation would have to be enacted by the General Assembly of North Carolina to cover all the contingencies involved. Second, a great deal of additional engineering work and planning would have to be done for plan B. The preliminary report of the Soil Conservation Service does not set forth the cost-benefit ratio for stream pollution control or industrial and municipal water supply. We do not know from this report how many families would be displaced or how much land would be inundated. Third, there is another grave deterrent to this approach. The present soil conservation legislation relating to the construction of these dams was passed in August of 1954 and funded in 1955. Out of the 50 applications that have been made in the State of North Carolina since the funding of this act, only 2 dams have been constructed and both of these relate to drainage projects in eastern North Carolina. During the 8 years since the funding of this legislation, no progress has been made toward construction of any flood control dams in the State of North Carolina by the Soil Conservation Service.

Now let us look at plan A as a compelling contrast in availability and feasibility. Here we have a full-dress report from the Engineers, we know the land to be inundated—about 30,000 acres at flood level—we know how many persons will be displaced, we know the cost-benefit factors for flood control, industrial and municipal water supply, stream pollution control, and recreation. Also, we will be conforming to an orderly pattern of the development of our large rivers and the further development of the river basin complexes in our State.

Now that I have discussed briefly both plans A and B, I want to point out with emphasis and to underline the fact that these plans are in no wise mutually [illegible] local authorities a series of small watershed dams



may also be built, and in fact I heartily urge that such construction be undertaken through local initiative, with available Federal assistance, as complementing the New Hope and Randleman and Howards Mill Dams. A combination of the three dams recommended by the Engineers and the series of small watershed dams recommended by the Soil Conservation Service would be eminently desirable and would represent a healthy pooling of local, State, and Federal cooperation and effort. But we must keep first things in first place, and the New Hope Dam is the foundation stone and the dominant need, on which all the other constructions should hinge.

Mr. Chairman, I thank you for your patience and shall not further encroach on it. With your permission, I shall submit for the record, as an appendix to my remarks, copies of telegrams and other endorsements by governmental groups in my district of the New Hope Dam, copies of editorials from leading papers in my district urging this action, and a copy of my statement in the last session of Congress to the chairman of the Subcommittee on Public Works of the House Appropriations Committee, under date of May 22, 1962, which gives further evidence of my reasons for endorsing plan A, which, led me say again, is of such significant meaning to the people of my congressional district and to the multiaspects of water needs prevailing in the State of North Carolina.

Mr. KORNEGAY. I would like to call around Gen. James R. Townsend, who is the chairman of the North Carolina Water Resources Department, and introduce him to the subcommittee.

Would you come around, General?

Senator JORDAN. General Townsend, we are delighted to have you with us, sir.

Mr. KORNEGAY. Let me say this about the general, he is a U.S. Army general, retired general. He for several years served in an outstanding capacity as the city manager of the city of Greensboro. He is also the treasurer of the National Rivers and Harbors Congress. He is a man who has long studied, and is thoroughly familiar with the water resources problem of our State. It is a pleasure to introduce him to the subcommittee.

Senator JORDAN. General Townsend, we are glad to have you here.

## STATEMENT OF JAMES R. TOWNSEND, CHAIRMAN, DEPARTMENT OF WATER RESOURCES OF THE STATE OF NORTH CAROLINA

Mr. TOWNSEND. Thank you, Mr. Chairman.

I have a prepared report which has some statistical data with it on the first couple of pages. If I may I will just read my summation and my recommendation.

Senator JORDAN. You may proceed as you wish, and that will be put in the record following your remarks.

Mr. TOWNSEND. I have studied the comprehensive report on the Cape Fear River Basin submitted by the Chief of Engineers, Department of the Army, and am impressed by the soundness of its conclusions, particularly by the vast benefits that would accrue to the region, State, and Nation through the accomplishment of recommended projects.

The report vividly points out the need for flood protection, water-quality control, water supply for industrial and municipal use, recreation, and other purposes in the Cape Fear River Basin. To meet these needs over the next 100 years, the report recommends the construction of a series of large dams, a system of small and intermediate size dams to be built by the Corps of Engineers on tributaries of the Cape Fear River, plus watershed protection and treatment measures

to be accomplished by the Soil Conservation Service under the provisions of Public Law 566, 83d Congress.

If I may, I will state parenthetically here we of the water board have worked very closely with the Soil Conservation Service people, and we think they are highly qualified to do their job and have done a splendid job and serving our State.

I heartily concur in the recommendations contained in the report of the U.S. Army Corps of Engineers. As the initial step in the development of the basin, I strongly urge that authorization for the immediate construction of the New Hope Dam be given favorable consideration by your committee.

I thank you for your attention, sir.

Senator JORDAN. Thank you very much, General. We appreciate your being with us.

I might add that I agree with Congressman Kornegay's remarks. I do not know of any man in North Carolina who is more familiar with our whole State water situation and has a better knowledge of it and more experience in it than you, General, and we are delighted to have your testimony.

Mr. TOWNSEND. Thank you, sir.

(The full statement is as follows:)

STATEMENT OF JAMES R. TOWNSEND, CHAIRMAN, DEPARTMENT OF WATER RESOURCES OF THE STATE OF NORTH CAROLINA

The opportunity to express my views with regard to the comprehensive development of the water and related resources of the Cape Fear River Basin is appreciated.

I am very much concerned by losses to urban and industrial properties, utilities, and highways that result annually from flood-producing storms which may occur within the Cape Fear River Basin in all seasons of the year. These losses are so great that the development of the basin will never reach its full potential until and unless flooding is controlled. There is an immediate and urgent need for positive action to be taken now that will provide flood protection, as well as an adequate source of water for urban, industrial, and agricultural use, water-quality control, and recreation. Too much time has been devoted to studies by Federal and State agencies—too many dollars have been expended in providing emergency measures.

On May 2, 1946, following the disastrous flood that occurred in September 1945, the Committee on Flood Control, House of Representatives authorized the Corps of Engineers to make a review of previous reports on the Cape Fear River Basin in the interest of flood control and other purposes.

For one reason or another, delay after delay has occurred and it was not until August 3, 1962, that the review authorized in 1946, was transmitted to the Honorable John W. McCormack, Speaker of the House of Representatives. In the meantime, property owners in the basin have continued to suffer damages as a result of flooding.

The population of the Cape Fear River Basin, about evenly divided between urban and rural, is 922,599 (1960 census) an increase of 37.7 percent over the 1950 census. It is estimated that approximately the same percentage of increase will be shown over the next 20 years.

The Cape Fear River Basin is highly industrialized—more than any other in the State. Some of the largest metropolitan centers are located in or near the basin although 60 percent of the land area is in farms. Croplands are mainly in the very fertile bottom lands and adjacent to flood-prone areas. Measures must be undertaken, without any further delay, to protect this basin from flooding and to provide an adequate source of water for other uses.

Two methods to accomplish this purpose have been considered: One proposes the construction of a dam at the confluence of the New Hope and Haw Rivers (New Hope Reservoir). The other proposes a system of 232 small- and intermediate-size dams. Both agree it is absolutely essential that flood protection for the Cape Fear River Basin be undertaken without any further delay.



I have studied the comprehensive report on the Cape Fear River Basin submitted by the Chief of Engineers, Department of the Army, and am impressed by the soundness of its conclusions, particularly by the vast benefits that would accrue to the region, State, and Nation through the accomplishment of recommended projects.

The report vividly points out the need for flood protection, water-quality control, water supply for industrial and municipal use, recreation, and other purposes in the Cape Fear River Basin. To meet these needs over the next 100 years, the report recommends the construction of a series of large dams, a system of small- and intermediate-size dams to be built by the Corps of Engineers on tributaries of the Cape Fear River, plus watershed protection and treatment measures to be accomplished by the Soil Conservation Service under the provision of Public Law 566, 83d Congress.

I heartily concur in the recommendations contained in the report of the U.S. Army Corps of Engineers. As the initial step in the development of the basin, I strongly urge that authorization for the immediate construction of the New Hope Dam be given favorable consideration by your committee.

Thank you for your attention.

Mr. KORNEGAY. Mr. Chairman, I failed to ask permission, but I ask unanimous consent to introduce in the record at this point telegrams and resolutions from my district endorsing plan A.

Senator JORDAN. So ordered. It will be inserted.

(The communications referred to are as follows:)

HIGH POINT, N.C., *March 12, 1963.*

HON. HORACE R. KORNEGAY,
*House of Representatives, Washington, D.C.:*

Regret my inability to attend committee hearing. Urge careful consideration of plan A Cape Fear River Basin. High Point feels the necessity that large reservoirs be considered. Please support plan A.

CARSON C. STOUT,
*Mayor, City of High Point.*

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BURLINGTON, N.C., *March 13, 1963.*

Representative HORACE R. KORNEGAY,
*House of Representatives, Washington, D.C.:*

Regret it impossible to attend hearing in person. Strongly urge your support of Army Corps of Engineers plan for New Hope Dam project. This is of vital interest to future of our area.

C. ALMON MCIVER,
*Mayor.*

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HIGH POINT, N.C., *March 13, 1963.*

HON. HORACE R. KORNEGAY,
*House of Representatives, Washington, D.C.:*

The Guilford County commissioners unanimously endorse Cape Fear River Basin project recommended under plan A of the Army Corps of Engineers.

DALE C. MONTGOMERY,
*Chairman.*

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HIGH POINT, N.C., *March 12, 1963.*

HON. HORACE R. KORNEGAY,
*Congress of the United States,*
*House of Representatives, Washington, D.C.:*

Respectfully and urgently request your support for the plan of the Corps of Engineers for the development of the Cape Fear River Basin.

T. C. RAGSDALE,
*Mayor, City of Jamestown.*

GRAHAM, N.C., *March 12, 1963.*

Hon. HORACE R. KORNEGAY,
*United States Congressman, Washington, D.C.*

DEAR HORACE: Please be advised that due to illness in my immediate family it will be impossible to attend the hearing on Thursday. Best regards.

OSCAR W. GAMMON,
*Chairman, Alamance County Board of Commissioners.*

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CHAPEL HILL, N.C., *March 14, 1963.*

Hon. HORACE R. KORNEGAY,
*Congressman,*
*Congressional Office Building, Washington, D.C.:*

Had to abandon plans to be with you this morning. Umstead resigned. Phipps to replace. Orange County lends its support and wishes you success.

DONALD STANFORD,
*Chairman, Orange County Board of Commissioners.*

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Whereas, the town council of the town of Jamestown heretofore at a special meeting on February 5, 1957, adopted a resolution endorsing and supporting a tion and flood control in the Cape Fear River Basin; and
requesting appropriations for surveys on Deep River for possible construction of dams where practical for water conservation and flood control on Deep River, including a damsite near Randleman, N.C.; and

Whereas, preliminary plans and proposals have been made for water conservation and flood control in the Cape Fear River Basin; and

Whereas it is the opinion of the town council of the town of Jamestown that the plan known as plan A of the Corps of Engineers, which proposes a three-dam construction—to wit: one at New Hope, one at Randleman, and one at Howard's Mill—is the better plan to effect water conservation and flood control; and

Whereas it is the opinion of the town council of the town of Jamestown that said plan would promote greater industrial development in the State of North Carolina and Piedmont area and provide increased recreation, tourist trade and fishing facilities as well as provide a possible water supply for the area in and around the town of Jamestown; and

Whereas it is the opinion of the town council that the said proposed plan of the Corps of Engineers would best serve the possible projected needs of the town and surrounding area and inure to its benefit in the overall, long range, contemplated planning of this area; Be it therefore

RESOLVED: That the town council of the town of Jamestown hereby endorses and supports the preliminary proposed plan A of the Corps of Engineers for the construction of three dams to be located at New Hope, Randleman, and Howard's Mill for water conservation and flood control in the Cape Fear River Basin, and further that a copy of this resolution be made available to parties interested in said preliminary proposal and plan.

This is to certify that the foregoing resolution was duly adopted at a special meeting of the town council of the town of Jamestown held at 1:15 p.m. on March 26, 1962, all members being present.

This the 28th day of March, 1962.

———, *Town Clerk.*

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RESOLUTION ADOPTED BY THE GUILFORD COUNTY BOARD OF COMMISSSIONERS

April 2, 1962

Whereas the Board of County Commissioners of Guilford County, N.C., has for many years been interested in the preservation of the natural resources of Piedmont North Carolina and in the conservation of land and water; and

Whereas the U.S. Army Corps of Engineers has proposed the construction of two large dams, one of which is to be on Deep River near Randleman, N.C., for embodying a large amount of water as a means of flood control for the Cape Fear River Basin; and



Whereas there is an ever-increasing demand for water to supply the growing needs for the people of the Piedmont area of the Cape Fear River Basin, and the aforesaid dam proposed by the U.S. Corps of Engineers would, in addition to assisting in flood control, also be a vital factor in land and water conservation for the area and greatly enhance the development of the area; and

Whereas this board is of the opinion that the needs would best be served by the large dams proposed: Now, therefore, be it

RESOLVED that the Board of County Commissioners of Guilford County, N.C., does endorse the proposal as presented by the U.S. Army Corps of Engineers for the construction of two large dams for the development of water resources and flood control of the Cape Fear River Basin.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of County Commissioners of Guilford County at a meeting held April 2, 1962.

———, *Clerk to Board.*

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DURHAM, N.C., *March 14, 1963.*

Hon. HORACE KORNEGAY,
*House Office Building, Washington, D.C.:*

The Durham City Council, meeting as the committee-of-the-whole this morning, agreed as follows:

1. The earliest possible completion of the flood control facility is necessary for the protection of persons and properties on the lower reaches of the Cape Fear Basin.
2. The high dam development offers the greatest potential for recreational facilities for the citizens of Durham, and is therefore favored by this group.
3. Protection for city against major capital or operational costs because of proximity of proposed lake basin to existing utility installations is respectfully requested.

W. A. BIGGS,
*Mayor pro tempore, City of Durham, N.C.*

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CHAPEL HILL-CARRBORO MERCHANTS ASSOCIATION,
CREDIT BUREAU AND CHAMBER OF COMMERCE, INC.,
*Chapel Hill, N.C., March 13, 1963.*

*To Whom It May Concern:*

During 1961, the board of directors of the Chapel Hill-Carrboro Merchants Association gave consideration to the two systems proposed for flood control of the New Hope River.

At a regular board meeting on January 8, 1962, the Chapel Hill-Carrboro Merchants Association's board of directors went on record as favoring the single large dam proposal as submitted by Mr. C. Whid Powell of Chapel Hill, N.C.

Very truly yours,

J. F. AUGUSTINE,
*Executive Director.*

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EXCERPT FROM MINUTES OF BOARD OF COMMISSIONERS OF ALAMANCE COUNTY, N.C., HELD ON MARCH 5, 1962

Whereas at the regular meeting of the board of commissioners on February 5, 1962, a resolution was adopted favoring the agricultural plan for flood control in the Cape Fear River Basin, all as appears by resolution duly recorded in the minutes of said meeting: and

Whereas at the time of said meeting, proponents of the agricultural plan appeared before the board and since the adoption of the resolution on February 5, 1962, a congressional committee hearing has been held relative to the project and additional facts and information have come to the attention of members of the board which, in the considered judgment of the board, should be given consideration and study by the board relative to the respective plans for the Cape Fear River Basin: Now, there, be it

*Resolved by the Board of Commissioners of Alamance County* That it rescinds the resolution of February 5, 1962, by which the agricultural plan for flood control in the Cape Fear River Basin was recommended and approved; that

the advantages and disadvantages of the respective plans be given detail study and consideration by the board inasmuch as the project is of great importance to this area.

This is to certify that the above is a true copy of a resolution adopted by the Alamance County Board of Commissioners at its regular meeting held on Monday, March 5, 1962, and duly recorded in the minutes thereof.

D. B. PENA,
*Clerk to the Board of Commissioners, Alamance County.*

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CITY OF GREENSBORO,
*Greensboro, N.C., March 11, 1963.*

Hon. CHARLES A. BUCKLEY,
*Chairman, House Public Works Committee,*
*New House Office Building, Washington, D.C.*

DEAR CONGRESSMAN BUCKLEY: The citizens of Greensboro, N.C., are vitally interested in the development of the Cape Fear River Basin as recommended under plan A of the Army Corps of Engineers.

Greensboro is a city of 130,000 population in the upper Piedmont region of central North Carolina. Within a 50-mile circle of our city there is a population of one-half million persons. The demands on our existing water resources are increasing daily with the rapid industrial and commercial expansion of our area. We are the largest metropolitan area between Richmond and Atlanta.

Proper long-range planning for conservation of our water resources in this area is essential to our continued growth and progress. The large reservoirs included in the Army Corps of Engineers plan would provide the cities of our region with a vital source of water supply for future years.

Some have advocated that these large reservoirs be abandoned for an alternative plan involving more than 200 small lakes and ponds. We in municipal government know the difficulty of acquiring land for constructing even one or two small lakes. We feel that any plan involving the construction of more than 200 such lakes is doomed to be lost in a never ending maze of purchases and condemnations of land; and, in addition, to be hopelessly snarled by the staggering engineering problem of designing more than 200 separate dams.

Thus, we feel that the debate is not between two alternative plans. Rather it is between the Army Corps of Engineers large lakes plan for the Cape Fear River or abandonment of this vital and long overdue project, allowing vital water resources to go down the drain of the Cape Fear valley, flooding the farmlands of southeast North Carolina.

On behalf of the people of Greensboro, we respectfully urge your support of plan A recommended by the Army Corps of Engineers for the development and consevation of the water resources of the Cape Fear River Basin.

Sincerely,

DAVID SCHENCK,
*Mayor.*

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[From Greensboro Daily News, Mar. 12, 1963]

LAKES PLAN IS ENDORSED BY MAYOR—STATEMENT SENT TO BUCKLEY

(By William R. Weaver, Greensboro Daily News staff writer)

The Army Corps of Engineers large lakes plan for the Cape Fear River Basin is Greensboro's one hope for the future, Mayor David Schenck declared yesterday.

Mayor Schenck's statement was contained in a letter directed primarily to Representative Charles A. Buckley, chairman of the U.S. House Public Works Committee, now considering the Cape Fear flood control program.

Copies also went to the North Carolina delegation in Congress, Governor Sanford, mayors of several cities concerned, and to newspaper, radio, and television services.

Schenck pointed out that "the debate is not between two alternative plans; rather it is between the Army Corps of Engineers large lakes plan for the Cape Fear River or abandonment of this vital and long overdue project, allowing vital water resources to go down the drain of the Cape Fear River Valley, flooding the farmlands of southeast North Carolina."



CITIZENS INTERESTED

The mayor started his letter by saying that the citizens of Greensboro are vitally interested in the Cape Fear River Basin as recommended under plan A of the Army Corps of Engineers.

"Greensboro is a city of 130,000 population in the upper Piedmont region of central North Carolina," he stated. "Within a 50-mile circle of our city there is a population of a half million persons. The demands on our existing water resources are increasing daily with the rapid industrial and commercial expansion of our area. We are the largest metropolitan area between Richmond and Atlanta.

"PLANNING ESSENTIAL

"Proper long-range planning for conservation of our water resources in the area is essential to our continued growth and progress. The large reservoirs included in the Army Corps of Engineers' plan would provide the cities of our region with a vital source of water supply for future years.

"Some have advocated that these large reservoirs be abandoned for an alternative plan involving more than 200 small lakes and ponds. We in municipal government know the difficulty of acquiring land for constructing even one or two small lakes.

"We feel that any plan involving the construction of more than 200 such lakes is doomed to be lost in a never-ending maze of purchases and condemnations of land; and in addition, to be hopelessly snarled by the staggering engineering problem of designing more than 200 dams."

Copies of the letter were sent to the mayors of Burlington, High Point, Randleman, Asheboro, Reidsville, and Fayetteville.

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[From Greensboro Daily News, Mar. 12, 1963]

TALE OF TWO RIVERS

Advocates of the Cape Fear River Basin development, with the New Hope high dam one of the Army Engineers key recommendations, have reason to be encouraged after elevation of Senator B. Everett Jordan to the chairmanship of the Senate Rules Committee and membership on the Public Works Committee which has to pass upon such projects.

While Senator Jordan and other members of the North Carolina congressional delegation support the Cape Fear program, Representative Harold D. Cooley continues to protest it and has so far succeeded in blocking action as a result of his prestige and power on Capitol Hill.

The Fourth District honorable is being gradually backed into a corner. At the outset he supported a nebulous soil conservation program, whose costs, land requirements, and number of dams are yet to be determined. He has subsequently talked about protection of the rights of property owners in Chatham County, where there is a division of opinion, and of his determination that these property owners be given a right to be heard before the proper congressional committee. It is this hearing which Senator Jordan in particular is trying to expedite.

Representative Cooley has also said much about pollution of the Haw and unfitness of the waters impounded by the New Hope Dam for drinking or even swimming or fishing purposes. The answer to that of course is to clean up the contaminated tributaries of the Haw. That cleanup is already underway. Greensboro has constructed a costly sewage treatment plant. And other municipal and industrial offenders are under pressure or court order to end their contaminating practices. There is every reason to believe that before the New Hope Dam could be completed under the Army Engineers schedule, the offensiveness to which Representative Cooley objects should be nonexistant.

Meanwhile it is noted that while the gentleman from Nashville is blocking action in the upper portion of his water-starved district, he is pushing vigorously for funds with which to complete a similar Army Engineers study of the Neuse River Basin which flows through the lower part of his district and to which Raleigh is looking for a water supply from a storage dam at falls of the Neuse. What folks up this way are wondering is why Representative Cooley blocks one

river basin development and simultaneously pushes for another? If recommendations of the Army Engineers cannot be trusted for the Cape Fear, why should they be pushed with such eagerness for the Neuse?

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[From Durham Morning Herald, Mar. 12, 1963]

SENATOR JORDAN OFFERS GOOD WAY OUT

Senator B. Everett Jordan has offered a constructive way out of the argument over high-dam versus low-dam development of the Cape Fear River Basin.

As the Senator insists there is no reason for this argument. The New Hope Dam and other projects in the Corps of Engineers high dam plans for Cape Fear won't exclude the Soil Conservation Service's low dams from the basin.

That isn't and never has been an aim of the high-dam plans. Backers of the high dams didn't raise the low-dam issue. It was raised by opponents of the proposed New Hope Dam who held out 232 low, dirt dams as an alternative to the Corps of Engineers high-dam plans.

High-dam backers object only to the suggestion that such a network of low dams alone could ever adequately harness the entire Cape Fear Basin. They insist that effective development depends on the high-dam plan—with the New Hope Dam as its key project.

At no time have they called for a high-dam-or-nothing program for the basin. At no time have they opposed Soil Conservation Service dams for upstream development of the Cape Fear's tributaries.

If there is confusion on this point, it was created when opponents of the New Hope Dam called for a low-dam-or-nothing program. Now Senator Jordan has proposed a way to set the confusion straight.

He offers no compromise. The bitter-end foes of the New Hope Dam won't be appeased. But those who see the New Hope Dam blocking local upstream development should be. For the Senator would authorize low-dam development upstream along with the high dam at New Hope.

Here is a constructive way for those whose first interest is developing Cape Fear to put aside their differences and get on with the job.

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[From the Greensboro Record, Mar. 11, 1963]

NEW HOPE AMENDED

Senator B. Everett Jordan offers a sensible "best of both plans" compromise on the development of the Cape Fear River Basin.

The Senator, a leading proponent of the Corps of Engineers plan for a big dam at New Hope and smaller dams up-stream at Randleman and Howards Mill, says this should be supplemented by Soil Conservation Service-planned smaller dams above the major installations.

The Soil Conservation Service has pronounced a plan for 232 small dams on the Cape Fear as "feasible." There is no reason, says Senator Jordan, for property holders above the Corps of Engineers dams not to build the soil conservation dams which will give them farm ponds and lakes—some of considerable size.

The benefits of the Cape Fear development plan will thus extend to cover farmers in the basin. Some farm groups have opposed the big dams as beneficial solely for flood prevention downstream—and not useful to those who live above them on the upper reaches of the Cape Fear Basin. The Jordan compromise should help to remove this objection, by spelling out what was really already the case.

Important as it is to press forward in the development of Cape Fear, progress should not be made at the cost of the upstream residents. There has never been any reason the conservation-type small dams could not be built, whatever was done about the large-dam project. Now that will be clearly stated in Senator Jordan's bill, to correct the "misinformation" and misconceptions which, the Senator says, are hampering the development which would benefit all in the area.



[From Greensboro Daily News, Mar. 6, 1962]

CROSSROADS AT THE CAPE FEAR

Senator Everett Jordan is right when he says North Carolina is now "at the crossroads on the Cape Fear and what is done in this basin will affect not only the Cape Fear Basin but also the Neuse Basin and, indeed, the entire State."

The late U.S. Senator Kerr Scott got the current flood control and water conservation programs started again in 1955. Senator Scott accurately saw water as a prime North Carolina need. The Wilkes County dam, now nearing completion, is part of his handiwork. To his credit, Senator Jordan continued Senator Scott's emphasis on water conservation.

The current controversy, in which Congressman Harold Cooley has lined up against the New Hope Dam in Chatham County and Senator Jordan has continued plugging for the project with courage and vision, is a tragic development. Congressman Cooley, a powerful man in Washington, gives every indication of fighting the issue strongly. If the dam project is defeated, the hope for any substantial water conservation project on the Cape Fear in the foreseeable future is bleak indeed. Senator Jordan anticipates it would take "years" to implement the multiple small-dam alternatives suggested by the U.S. Soil Conservation Service.

And beyond that is the possibility that the U.S. Army Engineers, seeing a political hassle on the Cape Fear, might postpone, even kill, the vital Neuse River project next door.

The plain truth is that no dam could ever be built—and water conserved—if those in power heeded the pleas of every property owner. These owners should be properly compensated for their land, but as Mayor E. J. Evans, of Durham, declared: "If those are the reasons that defeat the Cape Fear Dam, the same reasons could defeat almost any dam."

Defeat of the Cape Fear project, the Daily News believes, would be a tragedy. For years, and even decades, North Carolina's Senators and Congressmen have been working to increase critical water shortage facilities and eliminate damaging floods in North Carolina. Now on the very verge of success in an important river basin, Congressman Cooley's opposition, however honestly and sincerely arrived at, threatens to wreck the whole project.

If Senator Kerr Scott were alive today, he would put the issue in language loud and colorful enough to be heard, and heeded, everywhere. The people of North Carolina would do well to recall his prophecy that water, some day, will lead to the making or breaking of this State.

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STATEMENT OF CONGRESSMAN HORACE R. KORNEGAY, REPRESENTATIVE, SIXTH NORTH CAROLINA DISTRICT, TO THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON PUBLIC WORKS

Mr. Chairman, I appreciate very much this opportunity to express my views with regard to the funding of the Cape Fear River Basin development in my State of North Carolina, which has been advanced by the Board of Engineers for Rivers and Harbors and by the Chief of Army Engineers. I want to urge your committee to approve an appropriation of $280,000 for fiscal 1963 for the purpose of advanced engineering and design for this project, conditional upon the necessary authorizing legislation later this session.

I realize this may seem to be putting the cart before the horse, but the urgency of the situation prompts me to make this request. In view of the past interest of this subcommittee in approving funds for the comprehensive survey of the Cape Fear Basin, I venture the hope that this plea will fall on sympathetic ears. Through the years, this project has had the support of the incumbent Governors of North Carolina in the various stages of its development; and now we have come to an important milestone in this whole matter—when the high-dam approach has been recommended by the Board of Engineers for Rivers and Harbors and by the Chief of Army Engineers. Time is of the essence to us in North Carolina in the development of our water potential, and with so much water over the dam, so to speak, in preliminary work, we urgently need to go

forward with as much haste as possible in the conservation and development of this important river basin.

As I am sure you know, we do not look upon the development of the Cape Fear River Basin as an isolated project but rather as the second in a series of contemplated developments of our river basins, the first of which was on the Yadkin River, where the large dam approach was also made. It is my understanding that the Wilkesboro Reservoir on the Yadkin River can be completed during the coming year by means of an $800,000 funding; and, with the approval of this subcommittee, the Neuse River Basin survey can also be completed in the coming year with a funding of $90,000. Then, with the authorization of the Cape Fear River Basin project by the Public Works Committee, we can progress from the survey stage to that of actual construction, with a funding of this $280,000 as requested.

Thus you will see, Mr. Chairman, that we will have adhered to a logical pattern in development of our State river basins and that we will not have gone about this matter in a haphazard, hodgepodge fashion. Many years of work and study have gone into the surveys and plans for the development of North Carolina's river basins. It is vitally important to us in North Carolina to develop our water resources for flood control purposes; for industrial and municipal water supplies—urgently needed; for stream pollution control—a growing problem in my district; and for recreational uses.

Because the Cape Fear project is very important to my congressional district and to the State as a whole, and because of the deep interest existing in this project, which has been endorsed by many municipal and county bodies in my district, I respectfully urge the subcommittee to include the appropriation of $280,000 in the bill for fiscal 1963, as so ably requested by our esteemed North Carolina Senators, the Honorables Sam J. Ervin, Jr., and B. Everett Jordan, with whom I am happy to associate myself in this request.

Mr. KORNEGAY. I would also like to at this time, Mr. Chairman ask all those persons who have come to Washington in favor of plan A to stand up in order that they might be recognized by the Chair.

Senator JORDAN. Thank you very much. We appreciate the attendance of all of you. It shows your great interest in this vast project.

Mr. KORNEGAY. Thank you very much, Mr. Chairman.

Congressman Cooley, we will be glad to hear from you, sir, at this time, and any witnesses that you wish to introduce and be heard. We are mighty glad to have you with us this morning.

## STATEMENT OF HON. HAROLD D. COOLEY, A REPRESENTATIVE IN CONGRESS FROM THE FOURTH CONGRESSIONAL DISTRICT OF THE STATE OF NORTH CAROLINA

Mr. COOLEY. Mr. Chairman, I want to thank you for the patience with which you have heard the proponents of the High Dam at New Hope. Based upon this ex parte hearings at least one of the members of your committee expressed his opinion. We think we know your views and we doubt very much that we would be able to change your views, but I do have four or five witnesses I would like to preamble to have permission for them to file statements for the record, and I would like also to have permission to prepare and file a statement myself for the record because in the interest of time I think that would be accomplishing just about as much as if we proceeded to be heard at great length.

With your permission, I would like to call these witnesses.

Senator JORDAN. I appreciate that and we would be glad to hear any of them, and I will assure you we will stay here as long as you have witnesses who want to be heard.

Mr. COOLEY. I am sure you will, and I say you have been very



Senator JORDAN. And you may prepare your statement—when do you want it put in the record?

Mr. COOLEY. Before you close—the next few days.

Senator JORDAN. All right.

Mr. COOLEY. I would like to present Mr. Earl Parker from Chatham County, who has to leave actually because of illness of one member of his group. Mr. Parker is here and he made a statement yesterday before the House committee, and he will prepare and mail into the clerk of this committee a prepared statement.

Senator JORDAN. Have a seat, Mr. Parker.

Mr. COOLEY. And, also, Senator, Harry Horton, Chatham County, who also testified yesterday before the House committee, and he will prepare a statement and send it to the clerk to be filed here.

Senator JORDAN. All right.

Mr. COOLEY. And Mr. Dick Dailey, our State conservationist, I would like permission for him to prepare and file such statement as he may desire to file in connection with the problems under consideration.

Senator JORDAN. That will be received.

Mr. COOLEY. And Mr. Bob Scott, the master of the North Carolina State Grange, and the son of the late beloved Senator Kerr Scott, who served here with great distinction in years gone by; and Prof. Edward H. Wiser of the North Carolina State College who made a study of the problems of the Cape Fear Basin. I would like permission for him to file a statement.

(The statements referred to are as follows:)

STATEMENT OF REPRESENTATIVE HAROLD D. COOLEY OF NORTH CAROLINA, CHAIRMAN, HOUSE COMMITTEE ON AGRICULTURE

THE FATE OF THE CAPE FEAR RIVER BASIN

Mr. Chairman, we approach now the hour of a momentous decision—your decision, the decision of this committee—on the fate of the Cape Fear River Basin.

I come before you to counsel with you that on this decision rides the love of home, the devotion to place, the fortunes, the dreams, and the individual destiny of many people and many families in this basin and in our beloved State of North Carolina.

A great and serious and sorrowful error may be made. I want to forestall and prevent this wrong, if it is at all within my power to do so.

You have before you, first and formally, a grandiose proposition, brought in by the U.S. Army Engineers, to develop this great basin. The proposition, embracing an undertaking to consume 102 years in the making, calls for a huge dam at New Hope, two intermediate dams—Howards Mill and Randleman—and numerous smaller reservoirs.

You have also before you, informally, an alternative proposal, prepared by the Soil Conservation Service, to accomplish all the benefits of the Army's grand plan, at less than half the cost, in just a fraction of the time, and, above all else, without wronging and without heaping woe upon many of our people in order to bring enrichment and enjoyment to others.

I am here to plead for the plan that would benefit all of us without hurting any of us.

In the interest of the people caught fatefully in the balances of this impending decision, I respectfully present to you certain facts and certain observations, and petition your serious and sympathetic consideration.

The high dam at New Hope, as proposed by Army Engineers, would flood and obliterate 35,000 acres of rich, fertile farmland, an area which now adds some $2 million annually to the wealth of our people and our State, in crops and timber. This land would be removed forever from such purposes of productivity.

The high dam would flood out 150 families, submerging their homes, their churches, their schools and their burial grounds. Hundreds of other families

would be obliged to drive out of their own county through other counties to reach their courthouse at the Chatham seat in Pittsboro.

The impact upon the economy of Chatham County would be devastating. Not only would $2 million of annual income from agriculture be destroyed, but the most valuable farmland in the county would be removed from the tax books.

A railroad valued at $2 million, as well as part of one of the larger State highways, would be inundated.

The high dam would create a gigantic cesspool for raw sewage from towns and cities and for discharged chemicals from industrial plants.

A dam of such proportions sometimes can be justified on its potential for producing electric power. No power is even contemplated by the Army Engineers in this proposal.

The cost of the Army Engineers' proposal is fantastic.

The proponents of this plan talk about it as if it contemplated only one high dam. In truth and in fact this proposition, in addition to the $25 million for the New Hope Dam projects the building of numerous smaller dams, with an eventual total estimated cost of $72 million, over a period of 102 years.

I question this estimate of costs. If Army Engineers are as inaccurate on their New Hope proposal as they have been in at least seven other projects in the southeast, the cost will be not $72 million, but $186 million. Actual costs of these projects in the southeast have run 257 percent above the Army Engineers' estimates.

Mr. Chairman, let us now look at the alternative plan prepared by the Soil Conservation Service.

The SCS plan contemplates numerous smaller reservoirs in the upper reaches of the basin, to hold the water nearer where it falls.

The total cost would be only $36 million.

Flood protection would be assured in the basin by the series of smaller impoundments.

Pure water would be collected in these many lakes, located above the sewer outlets of towns and cities and above the pollutions of waste chemicals from industrial establishments. Thus unpolluted and pure water would be available for municipal and industrial water supplies.

These many lakes would provide pure water for human consumption, for fish and wildlife, for swimming and skiing, meeting the recreational needs of our people as far into the future as we are able to see.

Pure water would be available for agricultural water supplies.

The 35,000 richest acres of the valley would continue to flourish, producing $2 million annually in crops and timber for the livelihood and well-being of our people.

How then, Mr. Chairman, can we justify this proposition that is submitted here by the Army Engineers?

I can think of no argument for the high dam, except that the lake it impounds might accommodate pleasure boats of the luxury class, with deeper draft than would some of the smaller reservoirs of the SCS plan. I will concede there would be behind this dam more room in one place for boats to run up and down.

So what are we talking about here, when we compare the high dam to the sensible multiple reservoir approach of the Soil Conservation Service?

Mr. Chairman, I conceive of this high dam proposition only as a gigantic plaything.

Are we called upon here to appropriate $40, $50 million or more in taxes collected by our Government—above what is required to do a real job of flood control, water supply and recreation—just so some people will have a larger pond to run up and down in their boats?

This is perhaps the biggest boondoggle this committee has ever had to consider, benefiting the fewest people for the money to be expended.

I simply cannot go along with this in principle, when there are many rivers and other waterways in my State worthy and crying out for attention and improvement. I say to you: Spend all the money involved in your considerations, and spend this money in my State of North Carolina; but apply these expenditures in a way as to distribute the benefits over the widest area and among the greatest number of our people.

Mr. Chairman, there is a sensible alternative here, and I urge this upon you.

Let us bring forward whatever legislation is needed to commence immediately the series of smaller reservoirs in the upper reaches of this magnificent Cape Fear River Basin. This work can be completed in perhaps 5 to 7 years. Then, as the times will require it, let us build the Randleman and Howards Mill Dams.



And, if ever justified by the needs of our people for larger and larger water impoundments, that will be the time for a high dam at New Hope.

In this connection, I just recently arranged a conference of the Army Engineers, the Soil Conservation Service, and others who are interested, in and out of Congress, for the purpose of reaching a compromise in the controversy whirling around the development of this basin.

I regret to report that the Army Engineers were adamant, showing no interest in compromise. They in effect told us they had submitted their proposition and it is this or nothing, so far as they are concerned.

Mr. Chairman, I beg of this committee that it force a compromise. There are too many deeply human elements involved here for anyone to be arrogant and unyielding. This great basin must be developed.

I pledge to you that I shall do everything in my power to bring sense and justice in to this proposition.

But, Mr. Chairman, as this proposition now stands, I am saying to you that as one Member of the Congress of the United States, I simply cannot approve, and I shall continue to oppose with all the vigor at my command, this thing that would drown out my people just so that somebody else further downstream may have a larger pond to float his boat.

Thank you very much.

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STATEMENT OF R. M. DAILEY, STATE CONSERVATIONIST, SOIL CONSERVATION SERVICE, FOR NORTH CAROLINA

Mr. Chairman and members of the committee, at the request of the late Senator Kerr Scott, the Corps of Engineers, the Soil Conservation Service, and the State of North Carolina, initiated a joint survey of the Cape Fear River Basin late in 1957. The Soil Conservation Service carried out its phases of the joint investigation under the authority of section 6 of Public Law 566, 83d Congress, as amended.

The purpose of this joint survey was to prepare a generalized comprehensive plan for the development of the water and related land resources of the basin. It was agreed at the beginning that the generalized comprehensive plan report would not in itself contain any recommendations for authorization of specific projects, but would provide a framework within which any of the participating agencies could proceed to prepare plans for specific projects for authorization.

A joint report on the survey was completed in May 1961. Copies were provided to the House Committees on Agriculture and Public Works and to the Senate Committees on Agriculture and Forestry, and Public Works. The report was also provided to the concerned members of the North Carolina congressional delegation and was made available to interested individuals and ogranizations in North Carolina.

In view of the past history of flooding in the Cape Fear River basin, the provision of flood control, particularly along the main stem of the Cape Fear River, was the major element considered in these joint studies. The joint investigation by the Corps of Engineers and the Soil Conservation Service shows that adequate flood protection on the Cape Fear River below the Haw River can be provided by alternate systems of economically justified reservoir storage. The reservoirs in each of the alternate systems can be developed for mulitple-purpose use which will provide for some of the water needs for municipal and industrial uses, water quality control, irrigation, fish and wildlife, and recreation.

The joint report presented two alternative plans for water resource development in the Cape Fear River basin. Plan A, consisting of a relatively large reservoir on the Haw River at the New Hope site, was investigated by the Corps of Engineers. Plan B, consisting of a system of 232 small and intermediate size reservoirs, was investigated by the Soil Conservation Service.

The flood damage reduction benefits as presented in the report are based on the analysis of one storm runoff pattern, namely, the storm of tropical origin which resulted in the 1949 flood. The effectiveness of the two systems of reservoirs in reducing flood damages from this storm runoff pattern may be compared. However, the effectiveness of other features of the two systems is not fully comparable. The data presented in the report show that each of the alternative systems of reservoirs would provide essentially the same level of flood protection along the main stem of the Cape Fear River. However, since the 232 small and intermediate sized reservoirs contemplated in plan B are widely dispersed throughout the basin, they would provide flood protection

benefits to other areas which would not be afforded protection by the single large reservoir at the New Hope site contemplated in plan A.

It is desirable to emphasize the point that the joint studies were not intended to recommend any particular system of development, and, therefore, the joint report does not present such a recommendation. The Soil Conservation Service believes that in any river basin investigation all feasible alternatives should be given consideration and presented to local interests for their determination as to the system of development which would best meet their needs and desires. In view of this the Soil Conservation Service has not at any time recommended the adoption of either plan A or plan B. The official position of the Department of Agriculture has been presented to this committee by Mr. Carl B. Brown, of the Soil Conservation Service, who stated: "We have not at any time been and are not now opposed to the authorization of the New Hope Dam."

It has been indicated that the reservoirs contemplated in plan B have not been definitely located, and, consequently, there might be some doubt as to whether or not these reservoirs could be installed. Plan B was formulated by a sampling technique developed and used by the Soil Conservation Service over a long period of years. In the Cape Fear study, detailed field surveys were made of 34 dams in 5 subwatersheds and the results were expanded to the entire basin. We know, therefore, that at least 34 of the dams included in plan B can definitely be installed, and from field reconnaissance studies made of other subwatersheds we know that an adequate number of structure sites exist. Consequently, there would be no major problem involved in locating and constructing the number of upstream reservoirs described in plan B.

The joint report shows that approximately 30,000 acres of land would be required for the reservoir contemplated in plan A and approximately 72,000 acres would be required for the system of reservoirs contemplated in plan B. As I have indicated previously, the system of reservoirs in plan B can be modified to provide for multiple-purpose use, as for example, the storage of water for low-flow regulation, which would provide benefits from purposes other than flood control throughout the entire area, as well as along the main stem of the Cape Fear River. Additional lands would be required for such multipurpose development. In view of the large number of potential sites for the smaller reservoirs, most of these can be located without adversely affecting the existing economy. However, we recognize that for some of the larger reservoirs contemplated in plan B there is less flexibility and some of these reservoirs would require relocations that might adversely affect a few individual farm enterprises. It should be noted, however, that the current recommendation in the Chief of Engineers' report is for the construction of the New Hope Reservoir to be followed by the construction of reservoirs at the Randleman and Howards Mill sites and later apparently by a large number of small and intermediate size reservoirs similar to those described in plan B. Such a plan would ultimately require public acquisition of between 125,000 and 150,000 acres of land.

The committee has been presented with statements to the effect that the Soil Conservation Service now builds dams under the authority of Public Laws 566 and 87-639. The Soil Conservation Service under the authority granted to the Secretary of Agriculture by the Watershed Protection and Flood Prevention Act, Public Law 566, 83d Congress, as amended, provides technical, financial, and credit assistance to qualified local organizations to plan and install complete watershed treatment programs which may include dams such as those which are contemplated in plan B. However, Public Law 639, 87th Congress, provides authorization to the Secretary of the Army and the Secretary of Agriculture to carry out joint studies and investigations in river basins and to recommend plans to the Congress for authorization. The Soil Conservation Service does not construct any dams under the provisions of this law. It has also been stated to the committee that there are no laws in existence today under which a system of reservoirs such as is contemplated in plan B could logically be constructed and, therefore, major legislative changes would be required before the damsites could be located. This could be more properly stated that there are no laws which would authorize the construction of either plan A or plan B or any modification thereof at the present time. The Congress must enact legislation if either of these alternative systems or any combination thereof were to be installed. The Congress has previously enacted legislation (Flood Control Act of 1944) authorizing 11 river basin programs for runoff and waterflow retardation and soil erosion prevention in river basins, such as the Cape Fear. In this program, the Soil Conservation Service is installing a system of upstream reser- throughout the entire basin. The Washita River



Basin in Oklahoma, which is approximately the same size as the Cape Fear River Basin, is an example of the type of program which is being carried out under this legislation. In the authorized program for the Washita River Basin, approximately 400 reservoirs have been constructed by the Soil Conservation Service which provide for the needs within the subwatersheds and also provide for some of the needs along the main stem of the Washita River.

Watershed projects undertaken under the provisions of Public Law 566 essentially provide for local benefits within these watersheds. This law therefore provides that local interests shall bear a share of the cost of such a program and among other requirements local interests must provide all necessary lands, easements, and rights of way which are required for the program. Since many of the reservoirs contemplated in plan B are designed to provide benefits in the downstream areas it is not reasonable to expect that local interests would be willing to meet the same cost sharing requirements as under Public Law 566.

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STATEMENT OF HARRY HORTON, PITTSBORO, N.C.

Mr. Chairman, I am Harry Horton, of Pittsboro, Chatham County, N.C., and am at the present time one of the two members from the 13th Senatorial District, composed of Wake, Chatham, and Lee Counties, to the present North Carolina General Assembly.

I have for several years studied and followed the proposed plan for flood control proposed by the Corps of Army Engineers for the Cape Fear Basin. I am now and have been opposed to this plan for it does not provide for the total development of the basin. I am opposed to their proposal to construct a dam in Chatham County as part of their program which would inundate some 33,000 acres of land most of which is in Chatham County, and which composes some of our most valuable farm and timber lands.

To develop a basin such as the Cape Fear, factors other than flood control should be considered. There should be a total development of the basin—not a part. Water conservation should be a primary factor—with considerations being given to its use and availability for farm purposes, industrial development, and municipal uses.

To call to your attention briefly a little of the background of the Engineers plan, there were three dams proposed. The first to be the one on Haw River, which would have such a devastating effect on Chatham County. Then their plan would call for two other dams to be built some 10 years or more later in Randolph County. These three proposed dams would afford only flood control for those downstream from the Chatham County proposed dam and some flood control protection in Randolph County.

The original proposal called for the Haw River Dam to be 111 feet. That has since been lowered to the present proposal of 101 feet. There report implies no power is now indicated.

No provision was made for water conservation in the original Engineers report. Since this factor has been stressed by the opponents of the large dam, the Corps of Engineers has stated that they could come back and build multiple dams as proposed by the Soil Conservation. They attempt to say that this could lie done by the year 2065—or approximately 103 years from now. It appears to me that his is a long time for total development of the Cape Fear and only makes me more firm in my opposition to the Haw River project, particularly since the cost-benefit ratio of the Haw River Dam, or as we call it the high dam, is set up on the basis of only 50 years.

We say that a series of dams could be built, not necessarily the original number, but a smaller number of intermediate-size dams that would provide for the upper reaches of the basin in the Riedsville area and the Greensboro area and the Burlington-Graham area and the Asheboro area, where the greatest population of the basin is situated.

The opposition to the New Hope Dam comes not only from the landowners and the people of Chatham County, as you know the North Carolina Grange, the North Carolina Farm Bureau, and the soil supervisors for more than 10 of the counties in the basin oppose this proposed plan for obvious reasons. The North Carolina Association of Soil Conservation Districts for the entire State adopted a resolution supporting Congressman Cooley's position.

The North Carolina Academy of Science has also opposed the plan of the Army Engineers as well as Asst. Prof. Frank W. Woods, of the School of Forestry of

Duke University, in Durham, N.C. Responsible people in North Carolina are opposed to the flood control idea of the Cape Fear Basin without total development.

The County Commissioners of Chatham County as well as every countywide elected official of the county are opposed to the Engineers plan. We do not see the talking out of use and permanently inundating an amount of valuable acreage that equals to the farmland that has been flooded in the floods that have occurred, at 50-year intervals. We say that if the proponents of the big dam in Chatham County want to solve any problems in the Cape Fear Basin that they should work toward total development of all areas of the basin and not for just one particular area, particularly when it has such a devastating effect on one county without benefit to all 17 counties of the basin.

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STATEMENT OF EARL F. PARKER, CHAIRMAN, NEW HOPE VALLEY ASSOCIATION, PITTSBORO, N.C.

I speak to you today, not as an individual, but for the large number of citizens and landowners in the New Hope Valley, Chatham County, N.C., who would be inundated if the proposal of the Corps of Engineers was made a reality.

There would be 151 families left homeless if the water were impounded at 240 feet mean sea level. This figure does not include those who would be affected in the additional 5 elevated feet, nor the 2,000 acres that easements would be taken on, nor the 10 percent for blocking out.

My figures may not be elaborate because we have tried to make this an honest and accurate report.

If the high dam is constructed there will be more than 560 acres of tobacco allotment destroyed, 2,000 acres of cereal crops, 150 home gardens, much pasture land, and—according to the survey report—3,000 acres of growing timber. These factors within themselves are a great asset to our State. The minimum of their annual value would be tobacco $560,000, corn and cereal crops, $100,000, home gardens, $75,000, annual timber growth at $12 per acre, $360,000. The total of these figures is $1,095,000, which would be done away with in this county and in this State of ours. This would be a loss of over $1 million year after year just on farm products if this area should be inundated.

Now compare this amount with the annual benefits to be enjoyed by the area and the people below the proposed dam and you will find that there is not a feasible ratio of cost and benefit.

If you compare the two together the cost-benefit ratios are not so pleasing to look at.

We are interested in a program that will benefit the lower reaches of the basin and also the people in the upper reaches of the Haw River and its tributaries. We sincerely believe the series of small dams proposed by the Soil Conservation Service is as nearly ideal a program as can be developed.

We are interested in the value of our land, too. A recent land transaction, the latest we know of, consisted of the selling of a farm of 42 acres. This was in our valley. This farm, with 4.2 acres of tobacco allotment and meager buildings, sold for the round figure of $12,000 on the open market, or approximately $285 per acre—one of the least desirable farms.

Our land would be bought in fee for about $108 per acre if the Army Corps of Engineers program is put into effect.

The soil conservation program would not inundate this valuable land. It would be necessary to acquire only low-grade or bottom land, thus leaving the most productive soil in our county to feed and clothe our people and remain an asset to our State and Nation.

By making the program of soil conservation a reality, many thousands of acres will enjoy land enhancement in the Piedmont region, as well as in the regions below the junction of the Haw and New Hope Rivers. Farms in many areas could use said water for irrigation. The benefit figures for the irrigation water have never been included in the benefits listed for the soil conservation program, if I understand correctly.

Municipalities and industries would receive tremendous benefits under the smaller dam program by having bodies of water readily accessible in their area instead of having to pump water 40 or 50 miles.

If the big dam is constructed, the railroad which traverses New Hope Valley would have to be relocated. This would cost $2 million dollars. The figure for the relocation of a single railroad tract is fantastic—$100,000 per mile. If the small dams were constructed this expense would be eliminated, and business could be transacted on the said railroad in the usual manner.



Also the relocation of highways, including U.S. 64, would be a major undertaking. The accomplishment of this task would cost the Government a sizable sum. Again we say that such an expense would not be necessary if the multiple system of dams is used.

In the past the Army Corps of Engineers has underestimated the actual cost of projects of this nature. We see no reason why the New Hope Dam estimates would not be a repetition of things in the past.

Many people who presently favor the Army Corps of Engineers program do not realize that they will receive no benefits from that program. They think that the plan will provide an ideal recreation outlet for central North Carolina. It has been said that, under certain conditions, said lake would be useful only for boats. However the Army Corps of Engineer itself has pointed out in the past that, due to upstream pollution, the water will not be suitable for swimming or fishing, thus reducing recreation to a minimum.

The New Hope Dam is not needed and is not wanted, and if built will result in irreparable injury to the people in the area.

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STATEMENT PRESENTED BY E. H. WISER

GENTLEMEN: I appreciate the opportunity to testify on the subject of water resources development in the Cape Fear River Basin. This is one of our most pressing problems in North Carolina, even though we live in a so-called humid area.

Our water needs have been well documented by the Corps of Engineers. We need water for municipal, industrial, and agricultural purposes, and we need a strong plan for providing these needs, or rather, to determine which needs can be supplied and which cannot, since competition among the various users is clearly inevitable.

The specific interest of my department at North Carolina State College is concerned with agricultural needs, but we believe that this problem is inextricably related to the needs of the basin as a whole.

We were therefore led to examine the reports submitted by the Corps of Engineers and the Soil Conservation Service, to determine how well they fit our own comprehension of the needs of the basin. The paper submitted by me, titled "Water Resources Development in the Cape Fear River Basin," published as Information Circular No. 15 of the Department of Agricultural Engineering (a copy of which is attached) represents a very restricted analysis of certain aspects of the above-mentioned reports. It would have been impossible for us to have attempted a project of a scope comparable to that of the corps or of the Soil Conservation Service.

There are three points on which we disagree with the reports: (1) The estimates of flood benefits are much too high; (2) the low-flow provision of the New Hope Dam is inadequate; (3) the corps has taken an important part of the committee's decisionmaking function in specifying the sequential analysis.

The first point is clearly most important in terms of basin planning, because it affects the whole emphasis of the planning. Our analysis is documented in appendix A. Let me briefly sketch some of our findings.

The corps has estimated the average annual flood damage in the lower Cape Fear Basin, adjusted to 1958 price levels, to be $1,330,000. In comparison: (*a*) In 1933 the corps estimated annual flood damage of $130,700; (*b*) the Soil Conservation Service in parallel studies estimated damage at approximately 40 percent less than that computed by the corps; (*c*) the Weather Bureau estimates average annual damage in the entire South Atlantic region, at current price levels, to be $1,572,000.

The procedure which the Corps of Engineers used to predict flood damage may be considered in two steps: (1) Relation between flood damage in dollars and stage of the river; (2) frequency of occurrence of any given stage of the river.

I will not dwell on the first part, since we have used the corps estimates in the remaining analysis.

The science of hydrology which, among other things, deals with frequency of floods, is a very inexact science. Because of this, it is often possible to use different techniques which determine different results, and those who apply them can only argue about the results.

The corps has used one such standard method, one which is used with slight modifications by several agencies. But, in applying the results to the records at Fayetteville and Elizabethtown, where long-term records are available, we are provided with a very interesting statistical test. Actually, I have applied two different tests, the details being given in appendix A.

The result may be stated thus in a good statistician's language: If the corps estimate of flood frequency is assumed to be correct, there is less than 1 chance in 1,000 that the actual record would have occurred. In layman's language, we find that there is less than 1 chance in 1,000 that the corps' estimate is correct.

Some explanations have been considered in the paper, which I will not discuss.

The procedures which I have used to estimate flood damage have resulted in a value for average annual flood damage on the lower Cape Fear River at between $315,000 and $473,000 and probably less than $400,000.

Our second point of disagreement concerns the low-flow provision of the New Hope Dam. This is documented in appendix C. Briefly, we have found that, out of 12 years studied, in 3 of the years there was insufficient storage to maintain the required 600 cubic feet per second at Lillington. In the driest year (1953) there would have been a requirement of 113,000 acre-feet, whereas the storage allocated was only 72,000 acre-feet.

Looking again at the specifications, I must protest the guarantee of any kind of a hydrologic quantity. No matter how dry a year in the past, we must expect a still drier year in the future. We are therefore required to put some kind of probability values on quantities such as low-flow control.

I believe this factor is of importance because the people on the lower Cape Fear River have been guaranteed a required flow which cannot be maintained. The effect on their planning may therefore be disastrous.

The third point must be emphasized because of its influence on the conflicts that have arisen in the Cape Fear Basin. The corps justifies initial construction of the New Hope Dam because "approximately 63 percent of the flood control benefits, 16 percent of the water supply benefits, and 49 percent of the recreation benefits credited to the entire comprehensive plan of development of the basin would accrue from the effects of the New Hope project." (Reference H. Doc. 508, p. 63.)

My own computations show that the small reservoir project included by the corps in its comprehensive report, by this line of reasoning, is even more strongly justified because approximately 74 percent of the flood control benefits, 75 percent of the water supply benefits, and 35 percent of the recreation benefits credited to the entire comprehensive plan of development of the basin would accrue from the effects of the small reservoir project.

It would thus appear that an alternative sequence should be considered under which the small reservoirs are completed first, followed by the Howard Mill, Randleman, and New Hope projects in that order. Approximate figures for benefits for this sequence and benefit-cost ratios are given in the accompanying tables. (The approximate nature of these tables must be emphasized because inadequate data are provided by the corps.) These tables are directly comparable to those given in House Document 508, tables 17 and 18, pages 62–63.

The figures are based on the assumption that 90 percent of the flood benefits assigned by the corps to the New Hope Dam could be assigned to the small reservoir, if they were constructed first. This figure is based on a study of the 1945 flood. It may be shown from figures supplied by the corps that the small reservoir would be 96 percent as effective as the New Hope project at preventing nonagricultural damage along the lower Cape Fear River.

These figures show that the sequential development described here is perfectly sound. When considered in terms of the previous discussion concerning flood damage, it may be seen that the small reservoir and the Randleman projects are justified regardless of flood benefit evaluation, that the Howards Mill project is marginal, and that the New Hope project is not justified.

It is believed that the sequential development proposed here, considered in light of the published proposal contained in "Water Resources Development in the Cape Fear River Basin" would provide for optimum development of the upper basin while controlling floods in the lower basin, at a lower cost than that provided by the corps recommendation.



*Summary of average annual tangible benefits for reservoirs in comprehensive plan (1960 dollars)*

| Benefit | Other reservoir projects | Randleman project | Howards Mill project | New Hope project | Total |
|---|---|---|---|---|---|
| Flood control benefits: | | | | | |
| Flood-damage-reduction benefits | 1,139,200 | 117,000 | 234,000 | 98,800 | 1,589,000 |
| Land-enhancement benefits | 459,200 | 17,000 | 50,000 | 36,800 | 563,000 |
| Subtotal | 1,598,400 | 134,000 | 284,000 | 135,600 | 2,152,000 |
| Water-supply benefits: | | | | | |
| Municipal water supply | 473,000 | 72,000 | 9,000 | 44,000 | 598,000 |
| Industrial water supply | 354,000 | 1,000 | 10,000 | 30,000 | 395,000 |
| Agricultural water supply | 192,000 | 8,000 | 1,000 | 6,000 | 207,000 |
| Water-quality control | 25,000 | | 28,000 | 152,000 | 255,000 |
| Subtotal | 1,094,000 | 81,000 | 48,000 | 232,000 | 1,455,000 |
| Recreational benefits | 399,000 | 102,000 | 82,000 | 554,000 | 1,137,000 |
| Total | 3,091,400 | 317,000 | 414,000 | 921,600 | 4,744,000 |

*Sequential development—Summary of benefits and costs*

| Project | Assumed year of completion | Gross storage (acre-feet) | Average financial annual costs (1960 dollars) | Average annual benefits | Benefit-to-cost ratio |
|---|---|---|---|---|---|
| Small reservoirs | | 923,000 | $1,532,000 | $3,091,400 | 2.0 |
| Howards Mill | | 163,000 | 187,000 | 414,000 | 2.2 |
| Randleman | | 98,000 | 161,000 | 317,000 | 2.0 |
| New Hope | | 660,000 | 865,000 | 921,600 | 1.1 |

# WATER RESOURCES DEVELOPMENT IN THE CAPE FEAR RIVER BASIN

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# WATER RESOURCES DEVELOPMENT IN THE CAPE FEAR RIVER BASIN

## SYLLABUS


Considerable interest has been shown in making full use of the water resources of the Cape Fear River basin. A study has been undertaken to consider the availability of water and the needs of the basin, projecting into the future on the basis of past records.

Water supply in the basin, if properly managed, should be adequate for the foreseeable future. Management for optimum utilization is clearly the most important problem.

Flood control is of some importance in the basin. However, there is not sufficient flood damage to justify any major project with flood control as its primary purpose.

Development of recreational facilities should be given careful consideration in any development of the Cape Fear River. Expanding population together with increased interest in water-related recreational activities will result in heavy use of such facilities, particularly in the upper reaches of the basin.

Proposals for basin development which have been made by the Corps of Engineers and the Soil Conservation Service are discussed in some detail. It is concluded that these proposals are based on a mistaken emphasis on flood control, and that they do not present a method for optimum utilization of water resources in the basin.

An alternative proposal is made for a network of dams to be located in the upper reaches of the basin and on various tributaries. These dams, with a relatively large storage capacity, would be intended primarily for water supply, but would incorporate high recreational value and a limited amount of flood control. It is believed that such a project, coordinated with a plan for pollution control, will give optimum benefits to the entire basin.

## INTRODUCTION

During the past year two reports have been issued dealing with water resources in the Cape Fear River basin. The "Joint Report" (1), issued by the Corps of Engineers and the Soil Conservation Service, presents two plans termed "Plan A" and "Plan B". The "Comprehensive Report" (2), issued by the Corps of Engineers, incorporates features of "Plan A" into a much larger project. In both projects suggested by the Corps, the main point of interest, both by size and cost, is a dam to be located just below the junction of the Haw and New Hope Rivers, hereafter referred to as the New Hope dam.

In all of these projects, major emphasis is placed on flood control in the lower Cape Fear basin; that is, below the junction of the Haw and Deep Rivers. Additional benefits are expected to accrue in terms of water supply and recreation. An analysis of certain aspects of these projects made in this paper points up serious deficiencies.

In this report an alternative proposal, which will provide for optimum water resource development in the Cape Fear River basin, is made. This plan calls for construction of a network of dams to be located in the upper reaches of the basin and on various tributaries. These dams, with a relatively large storage capacity, would be intended primarily for water supply, but would incorporate high recreational value and a limited amount of flood control.

## PROPOSALS OF THE CORPS OF ENGINEERS AND THE SOIL CONSERVATION SERVICE

### Flood Control

Flood control should not be assumed to be a problem of major importance in the Cape Fear River basin. The river is relatively small, compared to those on which major floods occur. It rises in the Piedmont; thus, its watershed does not include the mountainous areas which are usually responsible for flooding. Snow melt is negligible.





Most of the largest floods have resulted from tropical storms or hurricanes and interest in flood control in the Cape Fear River basin results mainly from floods caused by such storms.

Floods of themselves do not necessarily require control unless they cause damage. Significant damage has occurred in this basin due to encroachment of the flood plain by urban development, primarily in the region of Fayetteville.

Significantly, the Corps of Engineers several times has reported that flood control is not justified in the lower Cape Fear basin. The most well known of these reports was published in 1933, known as the "308" report (3). It is worth noting that, of the four major floods that have occurred in recent years, only one has occurred since 1933. Thus, there is no reason to expect that major floods are more frequent now than they were prior to 1933. Certainly, there is more damage now from an equivalent flood because of encroachment of the flood plain.

One question to be considered is why the flood plain is developed in spite of the ever-present danger of floods. The answer must be that the developer is enticed into the area by low land costs or similar inducements.

In 1933, annual loss attributable to floods was estimated at $116,000 (3). Yet the Corps of Engineers (1) now estimates annual loss along the lower Cape Fear River alone at $1,330,000. Decreased value of the dollar and encroachment of the flood plain are not sufficient to explain a ten-fold increase in annual loss. We must look, therefore, at the procedure for estimating flood damage.

Flood damage estimates are discussed in detail in Appendix A. Total annual flood damage along the lower Cape Fear River is estimated by this author at between $315,000 and $473,000, with good reason to believe that it does not exceed $400,000.

The difference between our figure and the Corps' current estimate is discussed in Appendix A. It is attributable primarily to an overestimate of flood frequency by the Corps. The difference between our figure and the Corps' 1933 estimate is due to decreased value of the dollar, increased use of the flood plain and a different method of estimating damage.

Flood control costs are discussed in Appendix C. It is estimated that the annual cost of flood control for the lower Cape Fear River by the New Hope dam alone is $740,000, and by "Plan B" is $920,000. Thus the cost of flood control by either project considerably exceeds the cost of the damage.

Clearly, economic justification of water resource development in the Cape Fear basin should emphasize water supply and recreation, rather than flood control. Press reports indicate that most of the interest in these projects has been directed toward water supply and recreational purposes.

Because of this interest, a few comments about the design of the New Hope dam will be made.

The New Hope Dam

The New Hope dam is designed with flood control primarily in mind, but advantages accruing with respect to water supply and recreation have also been emphasized. Yet the dam is inadequate on all three counts. There is no question of the dam's ability to control runoff from its watershed of about 1090 square miles. However, this control is achieved on less than 40% of the total 4370 square miles above Fayetteville. Clearly, large floods could still occur at Fayetteville and in other areas of the lower basin.

As regards water-supply benefits, we find major cities nearest the dam, Raleigh and Durham, as well as the Research Triangle, expecting to draw their water from the Neuse River. With Burlington developing water supplies in its





immediate neighborhood, no major city is close enough to the dam to economically justify drawing water from the reservoir in the foreseeable future. In addition, the quality of water expected in the reservoir will be relatively poor (Appendix D).

Thus, the water supply aspect of the New Hope dam will be concerned primarily with maintenance of minimum flow in the Cape Fear River, where the water will be available for use by adjacent cities and for polution control. We find in Appendix C, however, that the present plan for the New Hope dam cannot meet the design minimum flow during all years. If it cannot maintain minimum flow, then certainly no water will be available for other purposes.

The recreational aspects of the New Hope dam also leave much to be desired. Some aspects are discussed in Appendix D.

Conclusion

Various aspects of the proposed plans for water resources in the Cape Fear basin have been analyzed. No attempt was made to discuss all aspects of the plans, but it is believed that sufficient evidence has been advanced to show that the proposed plans entail poor economics, misuse of water resources, or both.

ALTERNATIVE PROPOSAL

Any project for the purpose of water-resource development in the Cape Fear River basin should adequately use and control these resources for optimum benefits. Such development must be multiple-purpose, with a clear statement of purposes in order of priority. Considering all features of the Cape Fear basin and its future development, the following list in order of priority is recommended:

1) Water supply;
2) Recreation;
3) Flood control.

Water Supply

Water supply may be considered in two aspects: (1) direct use for municipalities, industries and agriculture, and (2) low flow maintenance for pollution control and use downstream.

Water stored for direct use must be reasonably close to the user. Municipal water supply should be of fairly high quality. On the other hand, industrial water supply does not require as good quality, except for food-processing industries of which there are few in the Cape Fear basin. In general, industrial needs can be met by maintaining adequate low flow, together with enforcement of adequate sanitation procedures.

Low flow maintenance then is of importance to industrial development, as well as for general use downstream. Several municipalities use water from the Cape Fear River, and some agricultural need may also be expected where farm ponds are unsatisfactory.





Recreation

In recent years, recreation has become increasingly important to the general public. Although many people from the Cape Fear region are drawn to the ocean, the mountains or other points farther away for long vacations, water-related recreational facilities in the Cape Fear basin will be used increasingly heavily on weekends and short holidays. Thus, it is desirable to have adequate recreational facilities located close to the centers of population.

Reservoir projects for water supply should be designed with recreation in mind. For recreational purposes a reasonably stable water level is mandatory, at least during the recreation season. The level should not be allowed to vary significantly from the normal lake level, the allowable variation depending on the flatness of the shore area. This restricts the amount of flood and low-flow control possible on such a reservoir.

The water supply on such reservoirs should be of adequate quality to insure low enough pollution levels to allow any use such as swimming and water skiing as well as good fishing.

Because of recent interest in boating, there should also be emphasis on adequate size of these reservoirs.

Flood Control

Although any major project designed primarily to control flooding in the Cape Fear basin is economically unjustified, a limited amount of flood control is certainly warranted. Any dam, regardless of purpose, will influence flood stages downstream both by reducing the maximum flow over the dam and by delaying the peak. In addition, a limited amount of flood storage could be provided on most reservoirs.

Wherever flood control is desirable on tributaries or in the upper reaches of the basin, watershed projects such as the Soil Conservation Service P.L. 566 projects may also be used. These projects would also reduce flood stages downstream.

A network of dams, designed with first consideration to water supply but with consideration to recreational advantages as well, will automatically provide some flood control. Slight modification, together with appropriate P.L. 566 projects, could provide all the flood control which is justifiable economically in the entire basin, rather than being limited to the lower basin.

Considering the above discussion, the following proposals are recommended.

The Upper Cape Fear Basin

Most of the water supply needs in the upper Cape Fear basin are confined to the cities in a line from Burlington to Greensboro to High Point. The following five watersheds (Figure 1) are of primary interest for water supply:

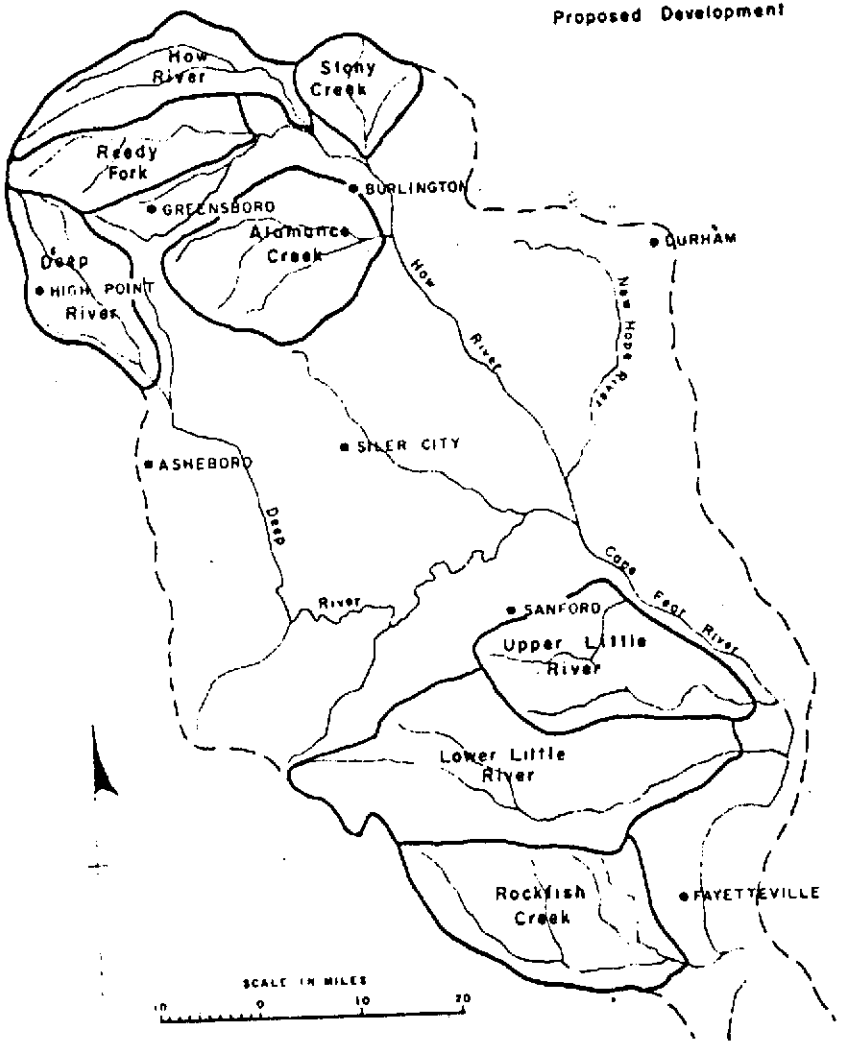
- Reedy Fork above Buffalo Creek;
- Haw River above Altamahaw;
- Alamance Creek;
- Deep River above Randleman;
- Stony Creek.

These five watersheds have a combined area of about 500 square miles. Assuming 8 inches minimum runoff per year, annual yield from these watersheds exceeds 110 billion gallons. If per capita consumption is 150 gallons per day, this is sufficient for 1,700,000 people, more than the expected population of this region in the foreseeable future. Thus, the cities in this area can be supplied with water from watersheds in their immediate neighborhood, without having to pump water long distances.





Figure 1
CAPE FEAR RIVER BASIN
Watersheds
In
Proposed Development



Reservoirs on these watersheds can be located at reasonable distances from the cities served. The watersheds have been chosen because of their relatively small pollution loads. Probably the most heavily polluted is the Deep River, which is already being used by Randleman for its water supply. Also, such a plan allows for discharging of wastes into Buffalo Creek at Greensboro and points downstream on Reedy Fork and the Haw River without affecting municipal water supplies.

Some development for municipal use has already been made of these watersheds. Burlington has two reservoirs on Stony Creek, Greensboro has two on Reedy Fork, Reidsville has one on the Haw River, and High Point has one on the Deep River.

The type of development recommended is a series of large reservoirs on each stream similar to the one proposed by the Corps of Engineers at Randleman (the Randleman dam would be a part of this recommendation). Generally, the dam upstream would be used to maintain the water supply to the downstream reservoir which would be used for municipal supply. Exceptions to this would be for cities such as High Point and Reidsville, where water would be drawn from the upstream dams. Existing projects would certainly be included in the overall project.

These projects would be excellently suited to recreational development; the water quality would be good, and the reservoirs would be close to population centers.

As pointed out previously, such projects would exert some control on floods. At least some of the reservoirs could be designed with a limited amount of flood storage, to further reduce floods. In several tributary areas P.L. 566 projects would be applicable. These projects and flood storage provision should be limited by economic justification.





Low-flow control would be satisfactory only to a limited extent on these reservoirs. It seems preferable to hold good water supplies where they are available near the cities. It is suggested that one or more dams, designed for low-flow control and recreation plus limited flood control, be located in both the Haw and the Deep River basins downstream from the water supply reservoirs. Possible sites are Howard's Hill on the Deep River and on Reedy Fork between Buffalo Creek and Haw River. These projects should have sufficient capacity to maintain adequate low flows not only on the Haw and Deep Rivers but also on the lower Cape Fear River.

The Lower Cape Fear Basin

Since water supplies are drawn primarily from ground supplies (i.e., by wells) and from the rivers in the lower Cape Fear basin, the problems and solution here are slightly different. Primary emphasis for water supply should be in maintaining low flows and in recharging the ground water reservoir. These could be accomplished most satisfactorily by locating one medium-sized dam each on the Upper and the Lower Little Rivers and on Rockfish Creek, and these should be supplemented by a number of P.L. 566 projects scattered through the basin.

Here, flood control is a natural result of such a project, since the water which would normally cause floods would be used to recharge the ground water.

Dam locations should be selected for optimum recreational development. Although prospective sites for dams are relatively fewer (because of topography) than in the upper basin, adequate sites for these restricted requirements can be found.

Conclusion

This recommendation calls for construction of about seven large dams similar to the proposed Randleman dam in the upper basin, and about three smaller dams in the lower basin, plus a number of P.L. 566 projects. No rigid specification can be made at this time concerning the actual number, location and size of the dams. Detailed hydrologic, topographic and geologic investigations are necessary before this information can be made available.

Such a project would ultimately cost about $50,000,000. Since much of the emphasis is on municipal water supplies, a fair share of the cost should be borne by the cities concerned.

An agency should be established with authority to supervise unified design, installation and operation of these reservoirs. It should also make recommendations for suitable P.L. 566 projects which would contribute to overall development of the basin.

Immediate action should be initiated toward formation of such an agency. While action would depend upon their recommendation, the first steps in putting this proposal into action might be construction of the Randleman dam (with adjustment in the water allocations made by the Corps of Engineers), and of a dam either on Reedy Fork or on the Haw River above Altamahaw.

It is believed that this recommendation provides for optimum use of the water resources of the Cape Fear River basin. By emphasis on water supply and recreation it would satisfy the needs,both present and future, of the majority of the people who live in the basin.





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## APPENDIX A

## PREDICTION OF FLOOD DAMAGE

The procedure which the Corps of Engineers used to predict flood damage may be considered in two steps:

(1) Relation between flood damage in dollars and stage or discharge of the river.

(2) Frequency of occurrence of any given stage or discharge of the river.

The information is combined for prediction of flood damage.

Relation between flood damage in dollars and stage or discharge of the river

Complete analysis of this relation requires field surveys of the amount of damage done by past floods. Most of the work done by the Corps was carried out in connection with the 1945 flood. Since such a survey takes a great deal of time, no check has been made by this author on the results. It should be noted that a great deal of the estimation is subjective, being based on figures supplied by those who suffered losses in the flood. Consequently, it is easy for an agency to prove almost anything it wishes concerning damage.

The only checks available are the flood damage estimates of the U. S. Weather Bureau. It is interesting to note that, according to the "307" report (3), the Weather Bureau estimated damage caused by the 1908 flood as $2,000,000, although the Corps estimated damage at $750,000.

For the years of major floods since that time, we note the following comparison between Corps estimates adjusted to 1950 price levels for the Lower Cape Fear basin and unadjusted Weather Bureau estimates (4) for the much larger South Atlantic region.





Annual Damage Estimates, $

| Year | Corps of Engineers (Cape Fear basin) | Weather Bureau (South Atlantic region) |
|---|---|---|
| 1928 | 1,729,000 | 8,302,000 |
| 1929 | 1,594,000 | 10,196,000 |
| 1945 | 9,300,000 | 1,007,000 |
| Average | 1,330,000 | 1,572,000 |

The discrepancy is apparent. Noting that the Weather Bureau figures were made at current price levels, the Corps estimates for 1928 and 1929 (obtained by using their stage-damage relation with the measured flood stages) are about one-tenth of the total damage in the South Atlantic region. On the other hand, their estimate for 1945 is about nine times the Weather Bureau estimate for the South Atlantic region, which is obviously unreasonable. Also the annual damage estimate for the Cape Fear basin is about three-fourths of the annual damage estimate for the South Atlantic region.

It may be pointed out that the Weather Bureau figures should be unbiased. It may also be mentioned that the Soil Conservation Service estimated flood damages 40% less than those given by the Corps (1, App. III - 1,2).

In consideration of the Weather Bureau estimates, it may be concluded that the SCS estimate is of the right order of magnitude. However, in the following section, the Corps estimates are used for direct comparison.

Frequency of occurrence of any given stage or discharge of the river

A detailed analysis of the frequency relations used in the report has been undertaken, since the data are readily available. The data are obtained as stage heights and, since the original damage relation is in terms of stage, frequency relations were calculated for stage heights.

Three stream gauges are located on the Cape Fear River. There is a recording gauge operated by the Geological Survey located at Lillington. Peak flood stages are measured by this gauge. Two other gauges, at Fayetteville and Elizabethtown (Lock No. 2), are non-recording gauges operated by the

Weather Bureau. Since data are usually obtained at these stations only once daily, the record does not necessarily include the peak stage for any flood. In recent years, additional intermediate readings have been taken during floods, but even these are not necessarily peaks.

Since these two non-recording gauges are most important in flood damage evaluation, it is necessary that good, consistent peak stage estimates are made. We cannot use the intermediate readings because they are not available for all floods. On the other hand, to use the regular daily readings ignores the knowledge that peak stages are usually higher. Looking over the available records, we find that very few of the intermediate stage readings exceed the daily recorded stages by more than one foot at these two locations. This is a reasonable consequence of the rather flat flood peaks that occur along the lower Cape Fear River.

Therefore, the data used in the following analysis are obtained by taking the highest recorded daily stage for each flood and adding one foot. This should generally give overestimates of the actual flood record.

All floods were tabulated over a certain base stage for each gauge. Such a record is termed a partial-duration series.

The records for Fayetteville, Elizabethtown and Lillington are plotted on Figures A.1, A.2 & A.3 by a standard Geological Survey procedure (7). The corresponding frequency estimates obtained by the Corps of Engineers are also plotted on these figures. These frequency curves are obtained from the discharge-frequency curves and the stage-discharge curves given by the Corps (1 and 2).

Noting that there appears to be some difference between the data and the frequency estimates, a statistical evaluation of the estimates appears justified.





We make the null hypothesis, $H_o$, that the Corps frequency estimates are the true frequency distributions for all floods at the three gauges. We then determine the probability that the actual records could have occurred under the null hypothesis. If this probability is less than .05, i.e. one chance in twenty, we shall reject the null hypothesis that the Corps frequency estimate for a given gauge is a correct estimate of the true flood frequency at that gauge.

Two statistical procedures may be used to test the null hypothesis. These are the Chi-square goodness of fit test and the Kolmogorov-Smirnov test (3). Calculations are given in Tables A.1, A.2, and A.3 starting at the one-year recurrence interval, since this is the lowest value for which Corps frequency estimates are tabulated.

One factor resulting in differences for the two tests should be noted. At Elizabethtown, for example, the Corps estimates that a flood stage of 27.2 feet is equaled or exceeded every year; for the record of 50 year duration, there should be 50 floods in which a stage of 27.2 feet was equaled or exceeded. In fact, there were 112 floods of this magnitude.

The Chi-square test includes this difference. On the other hand, the Kolmogorov-Smirnov test considers only the relative number of floods expected and observed over a given stage and thus ignores the total number of floods being considered. We conclude that, whereas the Kolmogorov-Smirnov test is generally considered more powerful than the Chi-square test, in this case, because of the differences in totals, it is less powerful.

In all three cases, we find that the calculated $\chi^2$ value exceeds the tabulated Chi-square value at the .05 probability level that was first assumed for the rejection region. We find, moreover, that in all three cases the calculated $\chi^2$ value exceeds the tabulated Chi-square value at the .001 probability level.

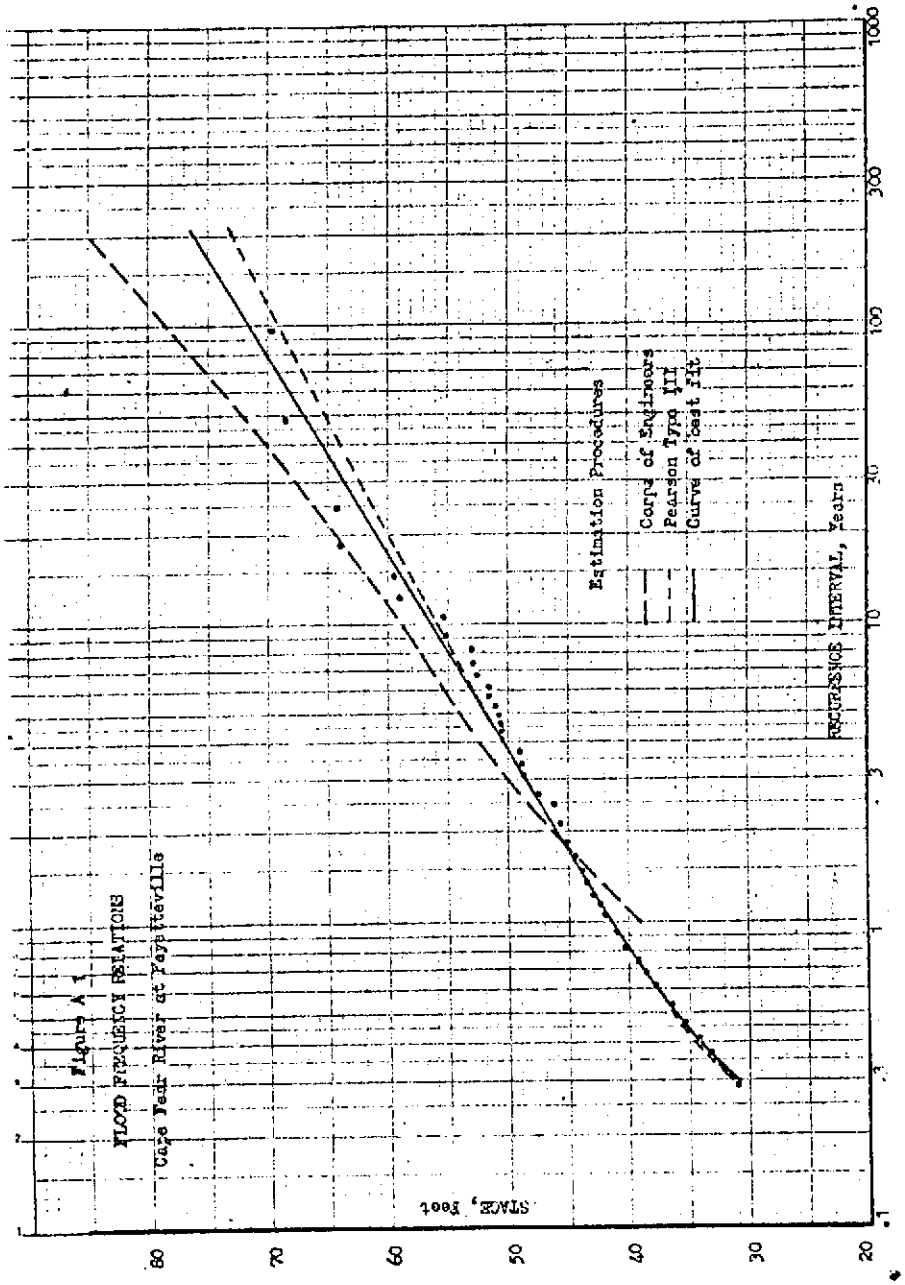



Figure A 1
FLOOD FREQUENCY RELATIONS
Cape Fear River at Fayetteville



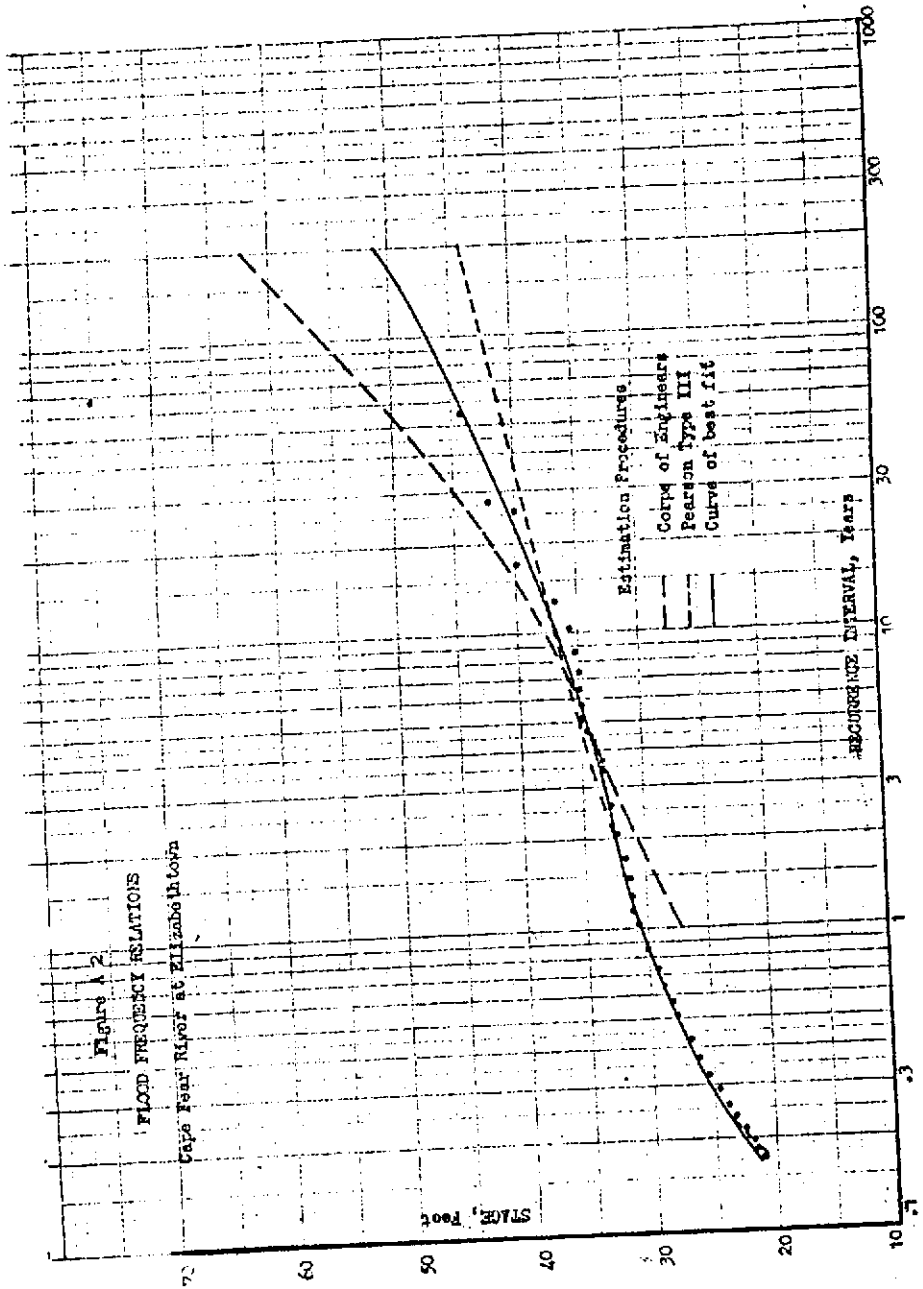



Figure A 2
FLOOD FREQUENCY RELATIONS
Cape Fear River at Elizabethtown

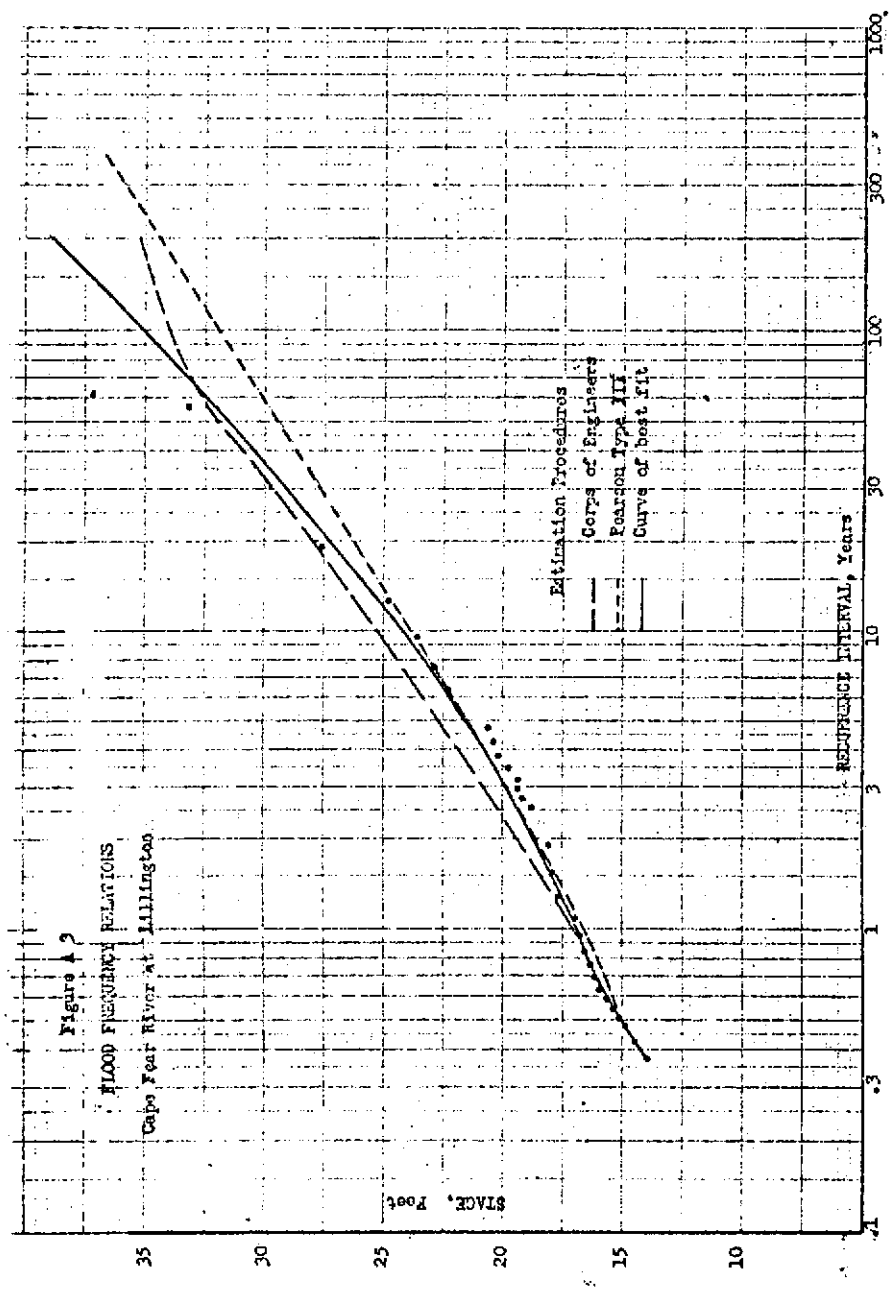





Table A.1

Statistical Analysis

Fayetteville

| Stage Feet | Recurrence Interval | Exceedances in 73 yrs. | E Estimated Events | O Observed Events | $\frac{(O-E)^2}{E}$ | F Expected Summation | S Observed Summation | $\lvert F-S \rvert$ |
|---|---|---|---|---|---|---|---|---|
| 39 | 1.00 | 73.0 | 6.6 | 10 | 1.8 | 1.000 | 1.000 | 0 |
| 40 | 1.10 | 66.4 | 6.1 | 17 | 19.5 | .910 | .907 | .003 |
| 41 | 1.21 | 60.3 | 5.4 | 10 | 3.9 | .825 | .748 | .077 |
| 42 | 1.33 | 54.9 | 4.9 | 10 | 5.3 | .751 | .655 | .096 |
| 43 | 1.46 | 50.0 | 4.9 | 11 | 7.6 | .685 | .562 | .123 |
| 44 | 1.62 | 45.1 | 8.6 | 16 | 6.4 | .619 | .458 | .161 |
| 46 | 2.00 | 36.5 | 6.9 | 6 | .1 | .500 | .309 | .191 |
| 48 | 2.47 | 29.6 | 5.6 | 8 | 1.0 | .406 | .252 | .154 |
| 50 | 3.04 | 24.0 | 4.7 | 8 | 2.3 | .329 | .178 | .151 |
| 52 | 3.78 | 19.3 | 6.7 | 3 | 2.0 | .264 | .103 | .161 |
| 55 | 5.8 | 12.6 | 6.4 | 4 | .9 | .173 | .075 | .098 |
| 60 | 11.8 | 6.2 | 2.8 | 2 | .2 | .085 | .037 | .048 |
| 65 | 21.7 | 3.4 | 3.4 | 2 | .6 | .047 | .019 | .028 |
| | | | | $X^2$ = 51.6 | | | $\lvert F-S \rvert_{max}$ = .191 | |

Chi square Test

Probability under $H_o$ that $X^2 \geq$ Chi square (13 d.f.)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| Chi square | 22.4 | 24.7 | 27.7 | 29.8 | 34.5 |

Kolmogorov-Smirnov Test

Probability under $H_o$ that $\lvert F-S \rvert_{max} \geq D$ (N= 107)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| D | .131 | .143 | .157 | .167 | .189 |

Table A.2

Statistical Analysis

Elizabethtown

| Stage Feet | Recurrence Interval | Exceedances in 50 yrs. | E Estimated Events | O Observed Events | $\frac{(O-E)^2}{E}$ | F Expected Summation | S Observed Summation | $\lvert F-S \rvert$ |
|---|---|---|---|---|---|---|---|---|
| 27.2 | 1.00 | 50.0 | | | | | | |
| | | | 6.1 | 14 | 10.2 | 1.000 | 1.000 | 0 |
| 28 | 1.14 | 43.9 | | | | | | |
| | | | 7.9 | 22 | 25.2 | .878 | .875 | .003 |
| 29 | 1.39 | 36.0 | | | | | | |
| | | | 6.4 | 16 | 14.4 | .760 | .678 | .082 |
| 30 | 1.69 | 29.6 | | | | | | |
| | | | 5.6 | 15 | 15.8 | .592 | .536 | .056 |
| 31 | 2.08 | 24.0 | | | | | | |
| | | | 4.9 | 18 | 35.0 | .480 | .402 | .078 |
| 32 | 2.62 | 19.1 | | | | | | |
| | | | 7.3 | 16 | 10.4 | .382 | .241 | .141 |
| 34 | 4.24 | 11.8 | | | | | | |
| | | | 4.4 | 7 | 1.5 | .236 | .091 | .145 |
| 36 | 6.8 | 7.4 | | | | | | |
| | | | 4.0 | 3 | .2 | .148 | .036 | .112 |
| 40 | 14.8 | 3.4 | | | | | | |
| | | | 3.4 | 1 | 1.7 | .068 | .009 | .059 |
| | | | | $X^2$ = 114.4 | | | $\lvert F-S \rvert_{max}$ = .145 | |

Chi square Test

Probability under $H_o$ that $X^2 \geq$ Chi square (9 d.f.)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| Chi square | 16.9 | 19.0 | 21.7 | 23.6 | 27.9 |

Kolmogorov-Smirnov Test

Probability under $H_o$ that $\lvert F-S \rvert_{max} \geq$ D (N = 112)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| D | .128 | .140 | .154 | .163 | .184 |





Table A.3

Statistical Analysis

Lillington

| Stage Feet | Recurrence Interval | Exceedances in 37 yrs. | E Estimated Events | O Observed Events | $\frac{(O-E)^2}{E}$ | F Expected Summation | S Observed Summation | $\lvert F-S \rvert$ |
|---|---|---|---|---|---|---|---|---|
| 16.3 | 1.00 | 37.0 | | | | | | |
| | | | 5.1 | 16 | 23.3 | 1.000 | 1.000 | 0 |
| 17 | 1.16 | 31.9 | | | | | | |
| | | | 5.9 | 14 | 11.1 | .862 | .698 | .164 |
| 18 | 1.42 | 26.0 | | | | | | |
| | | | 5.4 | 9 | 2.4 | .703 | .434 | .269 |
| 19 | 1.80 | 20.6 | | | | | | |
| | | | 4.8 | 4 | .1 | .557 | .264 | .293 |
| 20 | 2.33 | 15.8 | | | | | | |
| | | | 6.6 | 4 | 1.0 | .427 | .189 | .238 |
| 22 | 4.00 | 9.2 | | | | | | |
| | | | 4.3 | 3 | .4 | .249 | .113 | .136 |
| 24 | 7.5 | 4.9 | | | | | | |
| | | | 4.9 | 3 | .7 | .132 | .057 | .075 |
| | | | | $X^2$ = 39.0 | | | $\lvert F-S \rvert_{max}$ = .293 | |

Chi square Test

Probability under $H_o$ that $X^2 \geq$ Chi square (7 d.f.)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| Chi square | 14.1 | 16.0 | 18.5 | 20.3 | 24.3 |

Kolmogorov-Smirnov Test

Probability under $H_o$ that $\lvert F-S \rvert_{max} \geq$ D (N = 53)

| Probability | .05 | .025 | .01 | .005 | .001 |
|---|---|---|---|---|---|
| D | .187 | .203 | .224 | .238 | .268 |

Table A.4

Fayetteville Flood Stages

| Stage Feet | Number of storms 1889-1922 | Number of storms 1923-1961 | Accumulated Fraction 1889-1922 | Accumulated Fraction 1923-1961 | Difference |
|---|---|---|---|---|---|
| 69 | | 1 | .0 | .007 | .007 |
| 68 | 1 | | .009 | .007 | .002 |
| 67 | | | .009 | .007 | .002 |
| 66 | | | .009 | .007 | .002 |
| 65 | | | .009 | .007 | .002 |
| 64 | | 2 | .009 | .021 | .012 |
| 63 | | | .009 | .021 | .012 |
| 62 | | | .009 | .021 | .012 |
| 61 | | | .009 | .021 | .012 |
| 60 | | | .009 | .021 | .012 |
| 59 | 2 | | .026 | .021 | .005 |
| 58 | | | .026 | .021 | .005 |
| 57 | | | .026 | .021 | .005 |
| 56 | | | .026 | .021 | .005 |
| 55 | | 2 | .026 | .036 | .010 |
| 54 | | | .026 | .036 | .010 |
| 53 | 1 | | .035 | .036 | .001 |
| 52 | | 2 | .035 | .050 | .015 |
| 51 | 3 | | .060 | .050 | .010 |
| 50 | 3 | 2 | .086 | .064 | .022 |
| 49 | 1 | 1 | .095 | .071 | .024 |
| 48 | 5 | 1 | .138 | .079 | .059 |
| 47 | 1 | | .146 | .079 | .067 |
| 46 | 3 | 2 | .173 | .093 | .080 |
| 45 | 4 | 4 | .207 | .121 | .086 |
| 44 | 7 | 1 | .267 | .129 | .138 |
| 43 | 4 | 7 | .302 | .179 | .123 |
| 42 | 6 | 4 | .354 | .207 | .147 |
| 41 | 6 | 4 | .406 | .235 | .171 |
| 40 | 4 | 13 | .440 | .329 | .111 |
| 39 | 7 | 3 | .500 | .350 | .150 |
| 38 | 3 | 9 | .526 | .414 | .112 |
| 37 | 8 | 7 | .595 | .464 | .131 |
| 36 | 8 | 10 | .664 | .536 | .128 |
| 35 | 7 | 11 | .724 | .614 | .110 |
| 34 | 4 | 12 | .758 | .700 | .058 |
| 33 | 11 | 13 | .853 | .792 | .061 |
| 32 | 7 | 11 | .914 | .871 | .043 |
| 31 | 10 | 18 | 1.000 | 1.000 | .0 |
| Total | 116 | 140 | | Maximum | .171 |
| Years | 34 | 39 | | | |

Kolmogorov-Smirnov Test

| Probability under $H_o$ that Max. Difference $\geq D$ | | | |
|---|---|---|---|
| Probability | .10 | .05 | .025 |
| D | .153 | .171 | .186 |





According to Chi-square test, we must therefore reject the null hypothesis. Put another way, the test tells us that, given the actual data, there is less than one chance in one thousand that the Corps frequency estimates for the three gauges are correct.

The results of the Kolmogorov-Smirnov test are slightly different. In all three cases, we find that the calculated difference exceeds the tabulated difference at the .05 probability level that was first assumed for the rejection region. For two gauges, Fayetteville and Lillington, the calculated difference exceeds the tabulated difference at the .001 probability level. For the Elizabethtown gauge, the calculated difference is between the tabulated differences at the .025 and .01 probability levels.

The difference in the two tests at Elizabethtown is a consequence of the difference in number of floods mentioned previously. The Kolmogorov-Smirnov test does not take this into account.

Regardless, both statistical tests for all three gauges lead us to reject the null hypothesis that the Corps frequency estimates are correct estimates of flood frequency.

We must therefore find more reasonable estimates of flood frequency at the three gauges. We first consider factors that caused the Corps estimates to be so far in error.

Table A.4 shows the number of floods occurring at Fayetteville during the two periods, 1889-1922 and 1923-1961. The Kolmogorov-Smirnov test applied to these two records separately leads to the conclusion that the probability is only .05 that they were drawn from the same population. We know, however, that they were both drawn from the same population, i.e. the flood record at Fayetteville. What we have shown, therefore, is that there is a significant difference between the two periods.

We note, also, that use of the later period will result in much larger damage estimates since over 75% of flood damage at Fayetteville is caused by floods above a 60 foot stage.

The Corps used a large number of stream gauges to obtain regional frequency estimates, which were used in obtaining frequency estimates for the individual gauges. The above mentioned factor is significant when it is remembered that, of all the gauges used in the Cape Fear basin, only the gauges at Fayetteville and Elizabethtown have records prior to 1923. Thus, the later period, with its extreme frequency relations, has been weighted many times over the earlier period.

Another factor that should be considered is the drainage area. Riggs (5) noted a tendency for the frequency relation to be influenced by size of drainage area. While this was judged to be not significant by rather stringent statistical tests, this does not mean that the factor can be ignored, as was done by the Corps.

Another way in which the Corps' estimates are subject to error stems from their method of analysis. The analysis is based on the assumption that the logarithms of the discharges are normally distributed. This is definitely not true in the lower Cape Fear basin, and the resulting calculations are therefore in error.

The frequency distribution of floods in the lower Cape Fear basin is highly skewed. The Corps argues (1), on the basis of experience in the North Atlantic states, that this is the result of two different distributions superimposed on each other, one the result of non-tropical storms, the other the result of tropical storms. There are, however, too many tropical storms which result in low flood stages in the Cape Fear basin to accept this idea here. For example, two analyses were made of the Elizabethtown gauge, one





using the 294 highest stages, the other using the 147 highest stages. The result of using the smaller number of floods was to lower the frequency estimates, although not significantly. If the larger storms did indeed belong to a different distribution, the frequency estimates should have increased significantly.

Revised estimates of total non-agricultural damage are given in Table A.5. As mentioned previously, these values are based on the Corps' stage-damage relations.

The Pearson Type III calculation procedure (6) is a standard method of fitting skewed data to a mathematical curve. It was found that this method gave an excellent fit at low stages but gave low estimates compared to the record at higher stages. Hence the damage estimates are lower than those obtained by the non-mathematical procedures. This fact, together with previous discussion, points to the strong possibility that an unusual number of large storms have occurred in recent years and that the accepted estimates discussed below are therefore biased upward.

The curve labeled "curve of best fit" was obtained simply as a smooth curve drawn by eye through the observed data and extended through the 200-year recurrence interval to obtain damage estimates. Since this curve takes into account possible occurrence of rare floods, it is here accepted as giving better estimates than the actual record.

Damage estimates for both of the above methods were computed in exactly the same manner as used by the Corps, using their stage-damage relation.

The actual record was also used to estimate damage. All floods large enough to cause damage were considered. This procedure will lead to an estimate that is too large, since several floodsoccurring in one month do less actual damage than the same floods at widely scattered intervals. The Corps' damage estimates assume separated floods, but in the actual record there are many months in which there are two or more floods.

Table A.5

Total Annual Non-agricultural Damage, $

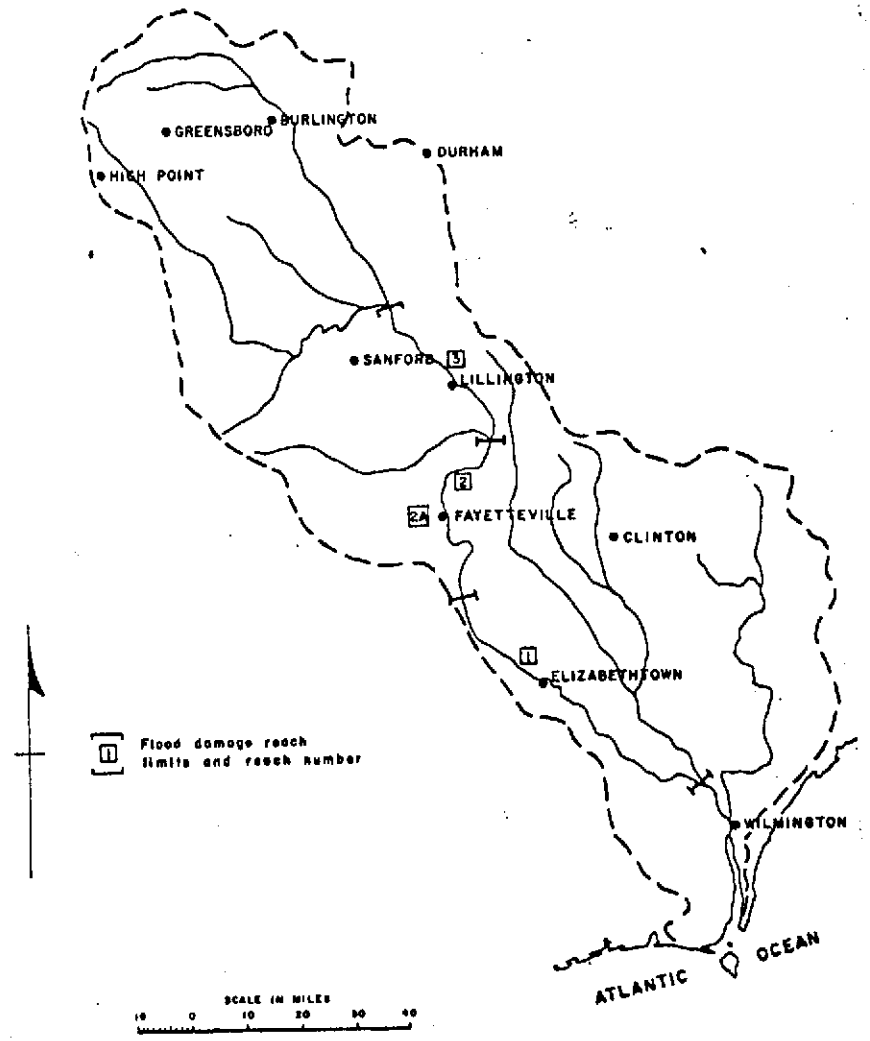
| Calculation Procedure | Reach 1 | Reach 2 | Reach 2A | Reach 3 | Total |
|---|---|---|---|---|---|
| Corps of Engineers | 95,700 | 267,900 | 532,800 | 10,100 | 906,500 |
| Pearson Type III | 31,700 | 60,100 | 80,400 | 6,000 | 178,200 |
| "Curve of best fit" | 49,000 | 97,100 | 159,000 | 10,200 | 315,300 |
| Actual Record | 37,000 | 79,500 | 103,200 | 11,200 | 230,900 |

Location of flood damage reaches is shown in Figure A.4.





Figure A 4
FLOOD DAMAGE REACHES
Lower Cape Fear River



Testimony given in the Digest of Public Hearing (2) by Mr. John D. Parramore, Jr., Executive Vice President of the Fayetteville Area Industrial Development Corporation, gives calculation of total flood damage at $16,344,579 over a 48 year period, or an average of $340,512. Of this total, $12,983,904 worth of damage resulted from the 1908 and 1945 storms. It may also be noted that the four storms causing major damage were included in this 48 year period, so that the average for the 73 year period 1889-1961 would be considerably lower.

The estimate of total annual non-agricultural damage along the lower Cape Fear River using the "curve of best fit" is $315,300. While no equivalent procedure is available for computing agricultural damage, estimates in the Joint Report (1) indicate that it does not exceed 50% of the non-agricultural damage. Thus total annual agricultural damage along the lower Cape Fear River is estimated at not more than $157,700, and total annual damage is estimated at no more than $473,000.

The discussion above indicates that the total annual damage may be considerably less than this estimate. The following points may be mentioned:

(1) The strong possibility that the recent flood record has been unusually damaging.

(2) The overestimate of the Corps of the stage-damage relation.

(3) The overestimate of the agricultural damage given above.

Considering the estimates of the Weather Bureau and the Soil Conservation Service, together with other factors mentioned, it is quite likely that the above estimate ($473,000) is 50% high. Total annual flood damage along the lower Cape Fear River is therefore estimated at between $315,000 and $473,000, and probably less than $400,000.





## APPENDIX B

## COST ALLOCATION

The Corps of Engineers in its Comprehensive Report (2, Appendix IV, pp. 14, 15) allocates annual costs for the New Hope dam project. Since the New Hope dam is designed as a multiple purpose project, the costs must be allocated to flood control, water quality control and recreation. The following allocation was made in October, 1961 by the Corps.

| | |
|---|---|
| Total financial cost | $865,000 |
| Allocations: | |
| Flood control | 563,000 |
| Water quality control | 75,000 |
| Recreation | 227,000 |

As of February, 1962 the Corps revised the allocation to $551,000 for flood control, $61,000 for water quality control and $253,000 for recreation. The allocation was based mainly on the expected benefits assigned to each purpose, and has no relation to the construction costs incurred by each purpose.

Apparently, if the flood benefit is lowered, the flood control allocation is also lowered and the allocation to one or more of the other purposes is correspondingly increased in order to keep total cost unchanged. Such a procedure can obviously be used to justify almost anything.

Since the primary purpose for the construction of the New Hope dam is flood control, it seems rational first to consider the cost of construction for that purpose alone. According to the Comprehensive Report (2), the annual cost of such a project would be $740,000. It is felt that this is a more realistic estimate of the cost of flood control by the New Hope dam than is the figure of about $563,000.

An additional consideration is the fact that the cost of every equivalent project in the southeast has been considerably above the cost estimated by the Corps.

In conclusion, we accept an estimate of annual cost of flood control by the New Hope dam at $740,000, with the comment that this is probably a low estimate.

The Soil Conservation Service did not compute annual cost of "Plan D" in the Joint Report (1). The total cost is estimated at $34,000,000 in the Joint Report, of which $33,000,000 is allocated for flood control. Using the same procedure as used by the Corps for estimating annual cost, the annual cost of flood control by "Plan B" is computed at approximately $1,300,000.

This estimate for "Plan D" includes flood control for the entire basin. To make the estimate comparable to that for the New Hope dam, this cost must be estimated for the lower Cape Fear River alone. On the basis of relative benefit computations, the annual cost of flood control by "Plan D" along the lower Cape Fear River is estimated at approximately $920,000.





## APPENDIX C

## WATER SUPPLY

The design of the New Hope dam includes provision for maintenance of low flow downstream. The statement is made by the Corps (2) that a minimum flow of 600 cfs will be maintained at Lillington at all times, controlled by the New Hope dam alone (the Randleman and Howard's Mill projects should further increase the minimum flow). This improvement in minimum flow should provide additional water supply downstream as well as reducing the pollution level of the river.

An analysis was made to determine the effect of such withdrawals on recreational value of the reservoir. The analysis was carried out for the 12 years, 1949-1960, during which time a stream gauge was located on the New Hope River. The following assumptions were made:

(1) Inflow to the reservoir equals the sum of the stream flows at the Haw River and the New Hope River stream gauges, which are both within the reservoir area.

(2) All outflow is included in stream flow at the Lillington gauge.

(3) Water takes 1 day to flow from the New Hope dam to Lillington.

(4) The storage rate of the reservoir is equal to the amount by which flow exceeds 600 cfs at Lillington, provided the inflow to the reservoir is not less than the Lillington excess. Otherwise, the storage rate equals the inflow.

(5) The discharge rate of the reservoir may be controlled to maintain a flow of 600 cfs at Lillington.

(6) There is maximum available storage in the reservoir of 72,000 acre-feet.

To match assumptions (3), (4) and (5), the dam operator at New Hope would have to know exactly what will happen the following day at Lillington. Since this is impossible, in order to maintain minimum flow at Lillington he would have to discharge more water than is estimated here.

Direct rainfall, evaporation and seepage have been ignored. It might be noted that in dry years, the evaporation will exceed the rainfall during the summer and fall.

During the 12-year period studied, the three driest years were 1951, 1953 and 1954. Table C.1 gives the approximate levels and areas of the reservoir. Although the level would have been drawn down seriously during the late fall months, the reduction through the summer would not have been serious. Since the summer level would be maintained above 208 feet during all years, it is concluded that the effect of water supply on recreation would not be important.

What is important about this analysis is that, during these three years, there would not have been sufficient storage in the reservoir to maintain a flow of 600 cfs at Lillington at all times.

The water supply deficits for the three years are as follows:

| | |
|---|---|
| 1951 | 6100 acre-ft. |
| 1953 | 41600 acre-ft. |
| 1954 | 7900 acre-ft. |

Remembering that the total water supply storage planned is 72,000 acre-feet, the deficit in 1953 is highly significant. It should also be pointed out that, because of the assumptions involved, these deficits are conservatively estimated

As the cities upstream on the Haw River conserve more water for their own use, it is apparent that even less water will be available for storage at the New Hope dam. Thus, it is clear that the New Hope dam cannot possibly provide the planned minimum flow without increasing the water supply storage capacity. This would result in increased cost for the project.





Table C.1

| Date | Reservoir Level, ft. 1951 | 1953 | 1954 | Reservoir Area, acres 1951 | 1953 | 1954 |
|---|---|---|---|---|---|---|
| June 1 | 211.5 | 212 | 212 | 9200 | 9400 | 9400 |
| July 1 | 212 | 212 | 211 | 9400 | 9400 | 8800 |
| August 1 | 211.5 | 209.5 | 209 | 9200 | 8000 | 7600 |
| September 1 | 210.5 | 206.5 | 206.5 | 8500 | 6600 | 6600 |
| October 1 | 203.5 | 203 | 200.5 | 5400 | 5200 | 4600 |
| November 1 | 201.5 | 200 | 211.5 | 4700 | 4300 | 9200 |
| December 1 | 200 | 200 | 212 | 4300 | 4300 | 9400 |

Maximum low-flow regulation pool:
Elevation 212 ft.;
Surface area 9400 acres.
Minimum low-flow regulation pool:
Elevation 200 ft.;
Surface area 4300 acres.

An increase of 60,000 acre-ft. in the low-flow regulation pool might be adequate for the specified low flow control. All other storage capacities remaining constant, the top of the flood storage pool would be raised about two feet, and approximately 2000 acres more would have to be purchased.

Another important point is the depth at which water will be drawn for low-flow regulation. Present plans (2, Appendix IV - 2) call for invert elevation of the conduit at 166 feet. Since normal pool levels vary between 200 and 212 feet, and will be around 212 feet most of the time, water will be drawn from depths of between 30 and 40 feet. Such water will have a very low dissolved oxygen content, and will also probably have an above normal iron and manganese content.

This prospect has been discussed in some detail in reports of both the Public Health Service and the Fish and Wildlife Service (2). Discharged water will be unsatisfactory under the present plan. Provision must be made for drawing water from various depths, which would add to the cost of the project.





APPENDIX D

RECREATION

The following are several quotations taken from the Report from National Park Service, appended to the Comprehensive Report (2).

> "It appears very doubtful that any site on the New Hope Reservoir will meet established North Carolina state park standards." (p. 2)
>
> "The Haw River is heavily polluted with municipal sewage and industrial wastes. The New Hope River carries moderate to severe pollution." (p. 4)
>
> "Extreme high stages and prolonged storage of flood waters would have a serious adverse effect upon scenic qualities of the shoreline. Possibility of high flood pools would be disadvantageous regarding site locations for some water-related facilities." (p. 5)
>
> "Preliminary studies by State health authorities indicate that the probable pollution factor within the foreseeable future would generally render the reservoir unsuitable for swimming. Inference may be drawn that considerable improvement in pollution must be made before the reservoir will be suitable for fish life." (p. 5)

The latter point is significant in terms of the following quotation from the New Hope Reservoir Study of the Public Health Service, appended to the Comprehensive Report (2).

> "The possibilities of claims for damages from municipalities and industries located in the reservoir area should be recognized. Where higher water uses such as recreation are created by construction of a reservoir, a higher degree of treatment of wastes than that which would have been required under natural conditions might be necessary to protect the health of the users. Where treatment or additional treatment would be required by the State to protect the new uses, the community or industry required to furnish such treatment may look to the agency which has made the new use possible for funds to provide the additional treatment."

Additional costs may also be accrued for fish and wildlife needs. These include additional clearing within the reservoir, construction and maintenance of sub-impoundments, and provision of areas for wildlife lost to the reservoir.

Another point deals with the recreational utility of the reservoir. The Hope site was chosen deliberately for its flat topography. Small changes depth result in large changes in surface area. Of the normal pool area of 0 acres, 5100 acres would be less than 12 feet deep, 3100 acres would be s than 6 feet deep, 2200 acres would be less than 4 feet deep, and 1200 es would be less than 2 feet deep. No recreational development would be sible in the upper end of the reservoir because the lake would often be too away -- as much as two miles.

The Corps (2) expects to purchase all land up to the 240 foot elevation, s 10% "blocking-out". This makes a total area of 33,000 acres which are be purchased. Thus, there would be an area of 22,600 acres surrounding lake on which no private development would be possible. Furthermore, additional 9000 acres up to the 250 foot elevation would be subject to ooding. On this basis, it is probable that the entire recreational develop- nt of the reservoir would be public.

It may be seen that the very factors that make the New Hope site desir- le for a flood control project -- location on a main stream and flat topo- aphy -- make the site undesirable for recreational development. The fact at most of the industries in the Cape Fear basin are concentrated on the r River above the New Hope site make the situation even more unsatisfactory cause of the pollution problem.





APEX, N.C., *March 19, 1963.*

*The Senate Public Works Committee,*
*Subcommittee on Water Resources,*
*Washington, D.C.*

DEAR SIRS: It is certainly an honor to write to the Senators of the United States. We hope you can help us with our problem.

We live in the vicinity of the New Hope Dam. Our hearts are heavy with burdens of the large dam. We do hope and pray that your committee can help us, as we need your careful consideration. We live on a tobacco farm. Our home is at stake. Everything that we have is at stake. It is wonderful to know that there is someone who cares, as we feel that your committee does.

Gentlemen, why should there be any question about which dams will be built. We believe the small dams would serve everyone better and would be an overall flood control project for the entire basin.

There is no one down at Fayetteville who will have to leave their homes and everything they have worked for. With all the sincerity in my heart I hope that justice will be your decision. Justice for all the people.

In the United States, why do we have to worry and be on edge all the time about losing our homes? Why can't we be happy like other people? We are living in the same world as those about us. Why does our lives have to be shortened by this terrible thing? We are very discouraged and would appreciate anything that your committee can do for us. My family, husband, mother, father, brothers, sisters, friends and neighbors are very upset and heartbroken about the building of the large New Hope Dam. Our land is very good tobaccoland, timberland, gardenland—fruit trees and anything can be grown on this valuable land.

Why can't we live in a world where all people have the same rights? Why should a decision have to be made on the small or large dam when the small dams are just as effective as the large one and no one would have to leave home and their living? Our homes are all we have got.

We feel that you folks will stand up for justice and build the small dams.

We appreciate your careful consideration for all the people who look to you as the leaders of the United States.

Your friends in Jesus,

Mr. and Mrs. HUGH STONE.

---

RAND DALE FARM,
*Randleman, N.C., March 25, 1963.*

Hon. H. D. COOLEY,
*House Agriculture Committee,*
*Longworth House Office Building,*
*Washington, D.C.*

DEAR CONGRESSMAN COOLEY: The enclosed petitions with signatures that represent 800 to 1,000 people in the Randleman area will convey to you and the committee, the extent of opposition that is building up against the construction of a high dam at Randleman.

We herewith express our sincere appreciation for your efforts against construction of these high dams, and at the same time giving you our full support for a more vigorous stand against the construction of any of the three proposed high dams.

If at anytime there is anything that we can do to assist you, please do not hesitate in letting me know.

Respectively,

RICHARD EARLE JOHNSON.

We, the undersigned property owners in the Randleman-Sophia-Level Cross-Cedar Square-New Market areas of Randolph County, oppose the construction of a high dam at Randleman, N.C., and we likewise oppose the construction of any other high dams which will affect the more than 6,000 acres in our vicinity. This area, which would be largely inundated and otherwise affected, would virtually destroy the dairy, poultry, and grain industries in northern Randolph County.

Dated, this 22d day of March 1963.

J. S. White, Route 1, High Point, N.C.
Richard Earl Johnson, Route 1, Randleman, N.C.
Mrs. Earl F. Johnson, Route 1, Randleman, N.C.
Seth L. Spillman, Route 1, Sophia, N.C.
Joe Tom Robbins, Sophia, N.C.
J. T. Robbins, Jr., Sophia, N.C.
Don T. Wall, Sophia, N.C.
Mrs. Pearl Hayes, Sohpia, N.C.
Mrs. Metta Hale, Sophia, N.C.
M. W. Farlow, Sophia, N.C.
Howard Rich, Sophia, N.C.
G. M. Small, Sophia, N.C.
C. L. Coggins, Sophia, N.C.
Joe L. Wall, Route 1, Sophia, N.C.
Mrs. Lois Kennedy, Box 29, Sohpia, N.C.
Mrs. Marshall Farlow, Box 36, Sophia, N.C.
C. C. Small, Route 1, Sophia, N.C.
W. C. Coltrans, Route 1, Sophia, N.C.
D. L. Sheffield, Route 1, Sophia, N.C.
Henry Crotts, Route 1, Sophia, N.C.
Mr. and Mrs. Berry Self, Route 1, Sophia, N.C.
Mr. and Mrs. Ronald Self, Route 1, Sophia, N.C.
Mr. and Mrs. Glen Hunt, Route 1, Randleman, N.C.
Eula S. Coggins, Route 1, Sophia, N.C.
J. W. Coggins Estate, Route 1, Sophia, N.C.
Ray Hunt, Route 1, Randleman, N.C.
Mr. and Mrs. George Penn Lamb, Route 1, Randleman, N.C.
Mr. and Mrs. Roland Walter, Route 1, Sophia, N.C.
Mr. and Mrs. J. L. Short, Route 1, Randleman, N.C.
Mr. and Mrs. Grant Vail, Route 1, Randleman, N.C.
Mr. and Mrs. F. O. Pope, Route 1, Randleman, N.C.
A. E. Lassiter, Route 1, Randleman, N.C.
John Hunt, Route 1, Randleman, N.C.
Cora Hunt, Route 1, Randleman, N.C.
Mr. and Mrs. J. A. Short, Randleman, N.C.
Mr. and Mrs. Willie Neal Coltrans, Route 1, Randleman, N.C.
Clara Adams Spillman, Sophia, N.C.
R. E. Brown, Route 2, Randleman, N.C.
Sadie V. Brown, Route 2, Randleman, N.C.
Richard Greenan, Route 2, Randleman, N.C.
David R. Davis, Route 1, Randleman, N.C.
Edward O. Davis, Route 1, Randleman, N.C.
Fred Staley, Route 1, Randleman, N.C.
Ellen Beeson, Route 1, Randleman, N.C.
Ben R. Cox, R.F.D., Randleman, N.C.
Franklin P. Cox, Route 1, Randleman, N.C.
Willis M. Cox, Route 1, Randleman, N.C.
Max Welborn, Route 1, Randleman, N.C.
Julet Dixon, Route 1, Randleman, N.C.
C. L. Dixon, Route 3, High Point, N.C.
D. S. Davis, Route 1, Randleman, N.C.
James R. Sneed, 3108 Wayne Street, High Point, N.C.
James H. Whitesell, 401 Liberty Road, High Point, N.C.
William C. Paschal, Route 1, Randleman, N.C.
Wesley J. Paschal, Archdale, N.C.
T. M. Cox, Route 1, Randleman, N.C.
James R. Swiggett, Route 1, Randleman, N.C.
G. Vance Steed, Route 1, Randleman, N.C.
Dilbert D. Hinshaw, Route 1, Randleman, N.C.
[illegible] H. Beeson, Route 1, Randleman, N.C.



Lindsay Adams, Route 1, Randleman, N.C.
Mary Alice Adams, Route 1, Randleman, N.C.
B. E. Davis, Route 1, Randleman, N.C.
R. S. Davis, Route 1, Randleman, N.C.
Gilbert L. Davis, Route 1, Randleman, N.C.
Austin P. Davis, Route 3, High Point, N.C.
D. Cleo Steed, Route 3, High Point, N.C.
Elizabeth Steed, Route 3, High Point, N.C.
Floyd Steed, Route 3, High Point, N.C.
Jesse C. Davis, Route 3, High Point, N.C.
Jess Lawrence, Route 3, High Point, N.C.
N. S. Edwards.
Robert B. Edwards, Route 3, High Point, N.C.
Jay S. Hahn, Route 1, Randleman, N.C.
J. Harold Beeson, Route 1, Randleman, N.C.
Robert S. Davis, Route 1, Randleman, N.C.
Robert S. Cashatt, Route 1, Randleman, N.C.
Clifford Hughes, Route 1, Randleman, N.C.
Melvin Hughes, Route 1, Randleman, N.C.
Doris D. Cashatt, Route 1, Randleman, N.C.
Rush Lamarr, Sophia, N.C.
Ray Hollingsworth, Route 2, Randleman, N.C.
Daniel R. Bulla, Sophia, N.C.
R. G. Wall, Route 1, Sophia, N.C.
Mrs. Tassie J. Bulla, Sophia, N.C.
Arthur Brown, Route 1, Sophia, N.C.
Cleo Swaim, Route 1, Sophia, N.C.
Homer E. Trogdon, Route 3, High Point, N.C.
Juanita Rich, Sophia, N.C.
Rufus Davis, Route 1, Sophia, N.C.
Hassel Hollingsworth, Sophia, N.C.
Hollie Beeson, Route 1, Sophia, N.C.
Bobby Lamarr, Sophia, N.C.
Ira Swaim, Route 1, Sophia, N.C.
Howard M. Young, Route 1, Sophia, N.C.
Laura Young, Route 1, Sophia, N.C.
L. W. Hollingsworth, Route 2, Randleman, N.C.
Betty M. Ridge, Route 1, Sophia, N.C.
Ronald Self, Route 1, Sophia, N.C.
Patricia Self, Route 1, Sophia, N.C.
Flossie C. Bristow, Sophia, N.C.
Lucille H. Pickett, Sophia, N.C.
Azel Millekan, Sophia, N.C.
Colbert Beeson, Sophia, N.C.
J. R. Hollingsworth, Sophia, N.C.
Dave Davis, Sophia, N.C.
Inez Davis, Sophia, N.C.
Don Elder, Sophia, N.C.
Leola Green, Sophia, N.C.
Mrs. J. Hartley, Sophia, N.C.
Thelma Adams, Route 1, Randleman, N.C.
Lacy V. Adams, Route 1, Randleman, N.C.
Charles Frazier, Route 1, Randleman, N.C.
F. T. Frazee, Randleman, N.C.
Claude Sartin, Route 1, Randleman, N.C.
Everett L. Caughson, Route 1, Randleman, N.C.
Mr. and Mrs. J. R. Highfill, Route 1, Randleman, N.C.
A. F. Hammer, Route 1, Randleman, N.C.
T. A. Hodgin, Route 1, Randleman, N.C.
B. P. Webster, Route 1, Randleman, N.C.
C. B. Highfill, Route 1, Randleman, N.C.
Gerry C. Hodgin, Route 1, Randleman, N.C.
Harvey Adams, Route 1, Randleman, N.C.
J. C. Hodgin, Route 1, Randleman, N.C.
Mr. and Mrs. Ray M. Hyatt, Route 1, Randleman, N.C.
Mrs. Annie Johnson, Route 1, Randleman, N.C.

Mrs. Betty Hyatt, Route 8, Greensboro, N.C.
Mr. Joe Hyatt, Route 8, Greensboro, N.C.
George Stanton, Route 1, Randleman, N.C.
Winnie Stanton, Route 1, Randleman, N.C.
H. P. Whitesell, Route 1, Randleman, N.C.
A. L. Crotts, Route 1, Randleman, N.C.
Herschel N. Hockett, Route 1, Randleman, N.C.
Emmett C. Spencer, Route 1, Box 91A, Randleman, N.C.
Exie Sartin, Route 1, Randleman, N.C.
E. P. Clodfelter, Route 1, Randleman, N.C.
Colon Farlow, Sophia, N.C.
Willie S. Hockett, Route 1, Randleman, N.C.
Elwood S. Hockett, Route 1, Randleman, N.C.
Janice F. Hockett, Route 1, Randleman, N.C.
H. Needham Hockett, Route 1, Randleman, N.C.
Marie L. Hockett, Route 1 ,Randleman, N.C.
W. E. Farlow, Route 1, Box 160, Randleman, N.C.
B. J. Lawrence, Box 166, Randleman, N.C.
Tiny W. Moffitt, Route 1, Randleman, N.C.
L. J. Small, Route 1, Randleman, N.C.
George T. Cox, Route 1, Randleman, N.C.
Steve Chappell, Route 1, Randleman, N.C.
George Dallrel, Route 1, Randleman, N.C.
Willie Lee Hoover, Route 1, Randleman, N.C.
M. L. Small, Route 1, Randleman, N.C.
Clyde Small, Route 1, Randleman, N.C.
Guy Small, Route 1, Randleman, N.C.
Ersie W. Small, Route 1, Randleman, N.C.
W. C. Small, Route 1, Randleman, N.C.
Walter L. Hunt, Route 1, Randleman, N.C.
Mabel Odom, Route 1, Randleman, N.C.
Bitty Matthews, Route 1, Randleman, N.C.
G. J. Harris, Route 1, Randleman, N.C.
Paul B. Gray, Route 1, Randleman, N.C.
Clair Presnell, Route 1, Randleman, N.C.
Mattie Bussen, Route 1, Randleman, N.C.
W. Howard Toonem, Jr., Route 3, Randleman, N.C.
N. R. Speen, Jr., Route 1, Randleman, N.C.
D. S. Hodgin, Route 1, Box 281, Randleman, N.C.
Kenneth and Emily Pugh, Route 1, Sophia, N.C.
J. W. Tamey, Route 1, Sophia, N.C.
Mrs. Roy C. Pearce, Route 1, Sophia, N.C.
Jim Davis, Route 1, Sophia, N.C.
Hessie N. Davis, Route 1, Sophia, N.C.
David M. Davis, Route 1, Sophia, N.C.
Farlowe Davis, Route 1, Sophia, N.C.
Fay F. Davis, Route 1, Sophia, N.C.
I. D. Robbins, Route 1, Sophia, N.C.
Alma B. Robbins, Route 1, Sophia, N.C.
Irene R. Browder, Route 1, Sophia, N.C.
W. H. Robbins, Route 1, Sophia, N.C.
Marie F. Robbins, Route 1, Sophia, N.C.
Fred Brenda, Route 1, Sophia, N.C.
Vera A. Davis, Route 1, Randleman, N.C.
Gwen Davis, Route 1, Randleman, N.C.
Myrtle D. Hollingsworth, Route 2, Randleman, N.C.
J. A. Davis, Route 1, Sophia, N.C.
Ruford Holland, Route 1, Sophia, N.C.
Phillip Hill, Route 1, Randleman, N.C.
Willie G. Ham, Route 1, Randleman, N.C.
G. C. Stubs, Jr., Route 1, Randleman, N.C.
Jean H. Johnson, Route 1, Randleman, N.C.

Mr. COOLEY. With that, I will just ask if there is anybody else here who wants permission to file a statement and, if so, I would like for them to indicate that.



Senator JORDAN. We will file this statement at this place in the record.

(The statement referred to is as follows:)

APEX, N.C.,
*March 14, 1963.*

Fertile New Hope Valley is rather funny—wonderful fields, magnificent trees, nourishing fruits, berries, nuts, milk, and honey—a heaven for man and animals. When I prepare to take my mule out to plow tomorrow, if I don't eat breakfast before daylight, a hen will lay me an egg before breakfast.

The proponents of the New Hope Dam say that basically we are all Americans and the few must yield to the many. I agree when logic is kept in the correct perspective. Most schoolchildren would say, naturally, let's build a big dam and go boating. Scarcely a child would say no.

The U.S. Government is as much concerned for 150 displaced families as for several thousand families in normal life.

I plead for dams in the Cape Fear River Basin that will benefit all and not eject families from their homes.

My Government has always been good to me.

Long live the United States.

Long live New Hope Valley.

DENNIS N. BUNKER.

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APEX N.C.

I'm a resident of New Hope Valley.

The Engineers have recommended one large dam. The Soil Conservation Service have recommended 232 small dams. Each is designed to accomplish the same purpose—flood control, water conservation, and recreation.

Big dams inundate vast areas of our best land and provide only a temporary structure with a life expectancy of 50 years, at best only 100.

Big dams are inhospitable to wildlife because of siltation which chokes out spawning beds and destroys aquatic vegetation of variable shorelines.

Little dams wouldn't take our homes and greater benefits would be realized throughout the entire basin, including irrigation, industrial, and municipal uses, low flow regulation, fish, wildlife, as well as recreation. Another feature of small dams is that the land on which they are built is generally owned by two or three persons. If you want to get permission to use the lake you only have to go over and knock on your neighbor's door.

Through the Soil Conservation districts, the science of soil and water conservation is being brought to the farmer's frontgate, and the gate won't be locked, for the farmer will know he is a part of something he has helped initiate.

The population in the United States increased over 2 million last year, which means we also should have conservation of soil. Congress should revise legislation effecting river basin development under Soil Conservation practices. If the Government can finance electric power facilities in river basin development, it should be able to finance conservation features. If the Government can pay for land for big dams, it should be able to pay for land for little dams. Congress ought to remove these obstacles.

If the 232 small dams are built, benefits would be realized throughout the entire basin. We would have flood control, conservation of soil, conservation of water resources, conservation of forests, and conservation of human values.

Please build small dams throughout the basin. Small dams would help all of us and we could keep our homes. I would be glad to give land for small dams. Not much flooding since 1945 as some of the farmers have built farm ponds.

MRS. D. N. BUNKER.

Mr. COOLEY. We will file those statements, and with the chairman's permission we will file those other statements as early as circumstances will permit.

Senator JORDAN. Thank you very much. We will be glad to hear any of your witnesses who want to be heard at this time.

Mr. Scott, we are delighted to have you, as the Congressman pointed out.

Mr. Scott is a son of the former distinguished Senator from North Carolina, former member of this Committee, former Governor, and one of our distinguished citizens, and we are delighted to have him before us this morning.

## STATEMENT OF ROBERT W. SCOTT, MASTER, NORTH CAROLINA STATE GRANGE

Mr. SCOTT. As Congressman Cooley said, I will file, with your permission, a formal statement later which will set out in detail and in essence, perhaps in more detail than what we stated in the committee hearing yesterday before the House.

I just would like to make a couple of brief points at this time, however, on the position of the grange. I wanted to be clear that of the two plans now under consideration known as plan A and plan B, the grange definitely favors the one submitted by the Soil Conservation Service or plan B, because it best fits the policy of the State grange and of the National Grange, for that matter, concerning river basin development.

It should be clearly understood that we believe that the system of small and intermediate reservoirs must be constructed throughout the basin in order to develop fully the total soil and water resources of the basin, and we strongly urge that this be done.

I would like to say we have no quarrel as to what agency or who handles this program. We believe, too, once these small and intermediate reservoirs are constructed that there would be no real economic justification for the construction of the single large reservoir at New Hope Dam site. Of course this, I think, would require some economic studies, but that is our belief at time time.

I appreciate the opportunity of making this brief statement and we will file a formal statement later, with your permission.

(The statement referred to is as follows:)

THE NORTH CAROLINA STATE GRANGE,
*Greensboro, N.C., March 29, 1963.*

HON. B. EVERETT JORDAN,
*New Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: Attached is the statement which I told your committee that the grange would file regarding the Cape Fear River Basin program.

With your permission we would like this to be made a part of the record.

Sincerely,

ROBERT W. SCOTT,
*Master.*

Enclosure.

STATEMENT FILED BY THE NORTH CAROLINA STATE GRANGE

In previous hearings held by congressional committees regarding development of the Cape Fear River Basin, the North Carolina State grange has stated its position as being opposed to the construction of a single large reservoir, known as New Hope Dam, on the Haw River in North Carolina. Instead, the grange supported the plan suggested by the Soil Conservation Service which called for the construction of 232 small and intermediate size reservoirs throughout the basin.

This position was taken on the basis that it was a choice of either a large dam or a series of small and intermediate dams.

The grange position is based on the following statement adopted by the voting delegates of our organization at its 1961 annual convention in Boone, N.C.

"The State grange recommends the adoption of plan B of the joint report of [illegible] and the Soil Conservation Service for flood control on the Cape Fear River. This provides for construction of a series of tributary structures which wil offer more benefits over a wider area and equal flood control below Moncure than a single dam on Haw River at the mouth of New Hope Creek."

This position was reaffirmed by the delegates at the 1962 grange convention in Kinston, N.C., as follows:

"We recommend continued efforts of support the development of the Cape Fear River Basin by the small dam method as was presented by the Soil Conservation Service. Support of legislation proposing that the small dam plan be enacted is also recommended."

Thus, the grange position remains that we favor the construction of the small and intermediate dams instead of a single large dam.

In recent weeks, a new proposal has been made that the two plans be combined to the effect that the single large dam would be supplemented by the small dams throughout the basin.

If this proposal is adopted, we favor the construction first of the small and intermediate dams suggested by the Soil Conservation Service. When this is done, the entire river basin will receive flood control benefits as well as the benefits of soil conservation, widely dispersed supplies of industrial and municipal water, irrigation water, and many additional recreational areas.

Further, the grange believes that once the small and intermediate reservoirs are built, there would be no economic justification for the construction of the single large dam, since flood control would have already been provided by the other plan.

By the same token, if the large dam is constructed first, the economic justification for building the small dams would, in our opinion, be largely removed. We would be greatly concerned that the small dams would never be built once the large dam was constructed.

Even if the Congress, in its wisdom, declared its intent to build the small dams later, the grange would question whether such would be a wise expenditure of public funds; that is, providing for two major flood control projects in a single river basin.

Senator Jordan of North Carolina is to be commended for his efforts to seek a solution to the problem. His proposal to combine the two plans would provide for the small dams throughout the river basin which the grange has advocated.

But we raise the question of the wisdom of implementing both plans from the economic standpoint when we are firmly convinced that the small dam plan will meet the total needs of river basin development. The construction of the small dams will do everything, and more, than the large dam.

We would like to see the Congress enact legislation which would permit the construction of the small and intermediate dams. We do not care which agency of Government has the responsibility of implementing the plan. We do think that this program should be provided for in this session of Congress so that progress can begin right away.

We feel that construction of the large dam should be delayed until the small dams are completed and then take another look at the needs of the basin to determine if the large dam is necessary.

We will conclude by stating that the grange continues to strongly endorse the construction of the small and intermediate dams and we will continue to oppose construction of the large dam until we see enacted into law provisions to implement the small dam plan.

Senator JORDAN. Thank you very much.

Mr. Cooley, would one week be ample time for all your statements to be provided?

Mr. COOLEY. Yes, sir, we will have the statements in 1 week.

Senator JORDAN. Thank you.

Robert has land on Haw River and he lives on it, and I have been plagued with some of the floods on Haw River, and I know a great deal about that problem there.

Mr. Cooley, did you have any other witnesses that you want to present?

Mr. COOLEY. No, sir.

Senator JORDAN. Colonel Marshall, if you will come back up to the stand——

Mr. COOLEY. Mr. Chairman, I would like permission for these witnesses who will file statements to include in those statements some recommendations and communications which they have received in connection with the problem.

Senator JORDAN. Oh, yes, certainly, that will be perfectly all right. Colonel Marshall, will you come up to the stand, please, sir, and I think we can proceed with some of the questions that might be asked at this time of the Corps of Engineers.

## STATEMENT OF COL. ROBERT C. MARSHALL—Resumed

Senator JORDAN. Colonel Marshall, there is a question that I would like to ask you, and I think possibly you can answer, which is a question that is asked by a great many people, and particularly those people who will be affected by water—that is, people who will lose their homes due to water being backed up over their land and farms and homes, and the same thing applies to churches and schools, and so forth. In the area there seems to be some confusion about this.

Will you please tell this group, and for the record, just what procedure the Army follows, the Corps of Engineers, in moving these people, paying for their property or whatever procedure you go through?

Colonel MARSHALL. Mr. Chairman, yesterday in my testimony I indicated, and I regret I didn't distinguish between 110 people and 110 families—I think there, as a father of eight children, I can make such a distinguishment. It is 110 families, according to the joint report, who would be displaced by this construction.

Other testimony presented to the House committee yesterday indicated 150 families.

In any event, the numbers are not significant. The Corps of Engineers is fully aware of the displacement problems. We find they are necessary, but certainly regrettable. It is the policy of the corps to attempt to fully compensate in acordance with the law for the loss of property.

If this project is authorized during the preconstruction planning phase, a real estate design memorandum will be prepared which will indicate in detail what taking of land will be required.

When this detailed study and analysis has been made, a public meeting will be held to fully inform interested residents of the recommendations of this study.

Residents will be informed whether their land will be taken or not. Subsequently, appraisers will attempt to determine the value of the land and the just compensation therefor. Individual owners will be contacted and owners will be apprised of the value assigned to their property. These appraisals are made by competent Government or non-Government appraisers.

Should the property owner disagree with the fair market value established by this appraisal, action may be taken by the individual owner. He may appeal through the courts for a different finding. Up to 90 percent of the fair market value of the property will be made available to the individual property owners during this period of contention.



Perhaps to make that more clear, we will deposit with the court sufficient funds which the court may release to the owners for those cases, in those cases, where the lawsuit is involved.

In addition to the fair market value prices for the property, dislocation costs of up to 25 percent of the fair market value can be provided to the owners.

In the case of community properties, comparable arrangements are made.

It is our policy in determining what property should be taken to use sound real estate practices, to minimize severances, to attempt to take whole properties, not parts of properties, to negotiate to the best of our ability, and with, we hope, good will, to arrive at an equitable agreed-upon arrangement with the individual or community owners.

Senator JORDAN. Colonel, in the case of a church that is located in the affected area, what is the corps' policy in regard to a church or a schoolhouse?

Colonel MARSHALL. In the case of a municipally owned or governmentally owned facility, they would be generally reconstructed in a new location, if they had to be taken.

Senator JORDAN. And you would pay for the site of the new location?

Colonel MARSHALL. Yes, sir. And comparably with churches or other necessary essential features we provide equal facilities. I cannot be more specific, sir. I don't pretend to be a real estate expert, but this is to the best of our knowledge.

Senator JORDAN. But it is the policy of the Corps of Engineers to pay all resulting damages for people who are displaced in moving, relocating, or anything that causes them to suffer losses. It is the policy of the corps to reimburse them fully and adequately and if they are not satisfied with the appraisal by whoever the Army picks out, they do have access to the courts, to a jury in their own county to be heard in cases like that?

Colonel MARSHALL. That is correct, sir.

Senator JORDAN. Colonel, there is one other thing which I think would be of interest. It would be to me, I am sure, and to some of the other people here. Now, the New Hope Dam is ready for construction; in fact, as you know, money has already been authorized to start construction—I mean appropriated—if we can get the authorization. What is the status of the Howards Mill and the Randleman Dams?

Colonel MARSHALL. Howards Mill and Randleman would require additional surveys. In order to produce a study of the New Hope type, we estimate it would take approximately 18 months from the time moneys are made available to come up with a comparable survey report for Randleman and Howards Mill.

Senator JORDAN. Now, there is another question that I would like to have answered, and I am certain a good many other people would also. Is it possible or is it feasible to build the Randleman Dam and the Howards Mill Dam without building the New Hope Dam?

Colonel MARSHALL. It is feasible; yes, sir.

Senator JORDAN. But under the existing law, is it possible to get the cost-benefit that would, you think, pass the House or the Senate?

Colonel MARSHALL. Yes, sir. The benefit-cost ratio for Howards Mill and Randleman would exceed the normal 1.0 to 1 parity benefit-cost ratio. We have not studied Randleman and Howards Mill as a separate increment, so I cannot report at this time as to what the precise benefit-cost ratio would be.

It is our view, however, based on our studies of the basin to date, that they would have a favorable benefit-cost ratio.

Senator JORDAN. If I understand your report correctly, that is based on the building of the New Hope Dam.

I believe you said that 80 percent of the flood control would be controlled by the New Hope Dam, only 20 percent would be controlled by the Howards Mill and the Randleman Dam. So those two would not meet the necessary criteria to solve the problem by themselves.

Colonel MARSHALL. They would not be anywhere near as effective as the New Hope project. They would not reduce the stages at Fayetteville to the same extent.

If you built Randleman and Howards Mill without New Hope, flood stage reduction at Fayetteville is something like 2½ feet compared to flood stage reduction of 9½ feet with New Hope by itself.

They don't provide, they would not provide the same low flow augmentation. We say 600 cubic feet per second could be guaranteed by New Hope during low flow periods, critically low flow periods, whereas Randleman and Howards Mill would only produce 200 cubic feet per second.

But while their benefits then would be reduced, so their costs equally are somewhat less. The total cost according to preliminary figures of Randleman and Howards Mill is something in the order of $8 million as compared to the $25½ million for New Hope.

So while the benefits go down, so do the costs, and consequently the benefit-cost ratio, we feel, would be favorable.

Senator JORDAN. But you couldn't get the low stream flow guarantee year in and year out nor could you get the complete flood protection as envisioned by the three. In other words, they would supplement the New Hope Dam to bring about the fulfillment——

Colonel MARSHALL. The three projects are certainly more effective, than just one or two as an alternative. Certainly all three working in conjunction would produce a more effective prevention of flood damages. The amount of flood control storage, as an example in New Hope, is 541,000 acre-feet. The amount of flood control storage that would be available, according to preliminary estimates, is only 184,000 acre-feet for Randleman and Howards Mill. They have one-third the amount of flood control storage, they have much less stage reduction at Fayetteville from floods.

They cost about one-third as much.

While these are preliminary figures that you cannot isolate benefits and costs, benefits go down, so do the costs.

Senator JORDAN. Thank you very much.

Does anyone wish to ask the colonel any questions?

Colonel, I appreciate it very much. I believe that would answer all the questions I had, and there seems no one else who wants to ask any.

Mr. Brown, would you come up, please, sir?

Mr. Brown, we are glad to have you back. There may be some questions that some of the witnesses would like to ask. I believe or



and about 2 years to develop the study and come up with a recommendation as to the small dams in this area?

**STATEMENT OF CARL B. BROWN—Resumed**

Mr. BROWN. Yes, sir; that is correct. That is what the Department of Agriculture would need, approximately, to do its part of carrying out a joint investigation.

Senator Jordan. To make a thorough study of this, a joint study, or just an independent study?

Mr. BROWN. We would recommend a joint study under the provisions of Public Law 87-639. We believe this joint study should be carried out to review, Mr. Chairman, the needs and justification for the program of upstream development along with Howards Mill and Randleman. If a further study is to be carried out, as Colonel Marshall indicated, which would take 18 months he stated, with respect to those two reservoirs, we believe that should be combined with a study of the upstream development to determine the total needs.

There is no question but what the developments of the upstream watershed program would have an impact on and that those two reservoirs would be closely related to what was justified in the way of smaller dam development.

Senator JORDAN. In other words, we are 2 years away from starting anything if we don't go ahead to the proposed plan for New Hope and it would be possible to start the New Hope if it got the authorization and at the same time start a survey to complete the basin as indicated by the SCS and the Army Corps of Engineers?

Mr. BROWN. From our standpoint we would be able to move into action on a joint survey very soon after funds were made available for that purpose, yes, sir.

Senator JORDAN. Thank you very much.

Does anyone wish to ask Mr. Brown a question?

I appreciate very much your being with us, and Mr. Dailey, one of our good citizens from North Carolina. We are mighty glad to have all these witnesses who came up here to testify today.

As indicated awhile ago, those statements that anybody wants to make or wants to have included in the record, if they get it in to the Committee on Public Works of the Senate during next week, it will be included in the record.

I appreciate very much again your being here. This concludes our hearing.

(Whereupon, at 12:10 p.m., the committee recessed, subject to the call of the Chair.)

(Additional statements received are as follows:)

ASHEBORO, N.C., *March 13, 1963.*

Hon. B. EVERETT JORDAN,
*Senate Office Building, Washington, D.C.*

Mayor John C. Bunch and Commissioner Russell C. Walker will represent the city of Asheboro at Chairman Charles A. Buckley's House Public Works subcommittee hearing on Thursday. They will submit a resolution passed by the Asheboro Board of Commissioners in favor of plan A of the Corps of Engineers Cape Fear River Basin plan. A copy of this resolution will be forwarded to you for your information and consideration.

LILLINGTON, N.C., *March 13, 1963.*

B. EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

DEAR MR. JORDAN: We wholeheartedly support the New Hope Dam project. Will you please express our views to the House and Senate committees?

Very truly yours,

J. A. SENTER, *Mayor.*
FRED SEXTON,
A. J. WHITE,
RAY JOHNSON,
ROBERT REDFERN,
FRANK LEWIS,
*Lillington, N.C., Commissioners.*

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CITY OF RANDLEMAN,
*Randleman, N.C., April 4, 1962.*

Hon. B. EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

DEAR SIR: The following is a copy of a resolution which was presented and adopted at a meeting of the council of the city of Randleman, held Tuesday, April 3, 1962.

BETTYE JO ALLRED,
*Clerk, City of Randleman, N.C.*

Walter Gibson moved the adoption of the following resolution:

Whereas the board of aldermen of the city of Randleman is familiar with what is known as plan A of the Corps of Engineers which proposes a three-dam construction in connection with the proposed flood control project covering the Cape Fear River Basin; and

Whereas it is the opinion of the board of aldermen of the city of Randleman that the plan known as plan A of the Corps of Engineers is the better plan to effect water control and conservation in the area under consideration; and

Whereas it is the opinion of the board of aldermen of the city of Randleman that plan A will promote greater industrial development in the Piedmont area of North Carolina and promote greater recreation and tourist facilities, as well as provide a possible water supply for the area around the city of Randleman: Be it therefore

*Resolved*, That the board of aldermen of the city of Randleman hereby endorses and supports the preliminary proposed plan A of the Corps of Engineers for the construction of three dams to be located at New Hope, Howard's Mill, and Randleman for water conservation and flood control on the Cape Fear River Basin, and further that a copy of this resolution be made available to parties interested in said preliminary plan and proposal.

James Steed seconded the motion, and upon being put to a vote the motion was unanimously adopted.

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RALEIGH, N.C., *March 14, 1963.*

Senator B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.:*

I am aware of the resolution sent to you by the mayors' association of Wake County which is in favor of the principles of water resources development and control as set forth in the Cape Fear and Neuse River projects and would like to join them in the earnest hope that Congress will approve and speed the completion of both the Cape Fear and Neuse River projects.

KARL G. HUDSON, Jr.,
*President, Raleigh Chamber of Commerce, Raleigh, N.C.*

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CITY OF RALEIGH, N.C.,
*March 12, 1963.*

Hon. B. EVERETT JORDAN,
*Washington, D.C.*

DEAR SENATOR: Attached hereto is a copy of a resolution adopted by the Mayors' Association of Wake County at its monthly meeting last night, March 11, at the Raleigh YMCA.

I believe this resolution is in line with our telephone conversation. But, as I believe I explained to you on the phone, we did not take a stand as to the advantages of the so-called Big Dam against many smaller ones. We do not feel qualified to express an opinion on this issue, but our main purpose was to try to show that we are in no way opposing the development of the Cape Fear.

I do hope the resolution meets with your approval and will end the rumors that there is opposition to the Cape Fear due to a belief that it will hinder the progress of the Neuse. On the contrary, we realize that there is no conflict between these two projects.

Incidently, the membership of the Mayors' Association of Wake County consists of the mayors and mayor pro tems of Apex, Cary, Fuquay Springs, Garner, Knightdale, Morrisville, Raleigh, Rolesville, Wake Forest, Wendell, and Zebulon.

Again thanking you for your telephone call and letter of the 8th instant and with highest regards and best wishes, I am,

Sincerely,

W. G. ENLOE, *Mayor.*

Enclosure.

RESOLUTION OF THE MAYORS' ASSOCIATION OF WAKE COUNTY

Whereas, the citizens of Wake County's cities and towns are greatly interested in the prompt and proper development of water resources in both the Cape Fear and the Neuse River Basins, and

Whereas Wake lies primarily in the Neuse River Basin, thus making the U.S. Engineers' projects for the Neuse of vital concern to our citizens; nevertheless plans for the Cape Fear, which will also benefit Wake, are of interest although to a lesser degree than the Neuse; and

Whereas there should be no conflict or competition between the Cape Fear and the Neuse projects, and none are recognized at this time: Now, therefore, be it

*Resolved by the Mayors' Association of Wake County*, That during the present hearings on the Cape Fear development we feel we should make our position clear to the House and Senate committees that we heartily favor the principles of water resources development and control as set forth in the Cape Fear and Neuse River projects and express no objection to approval of development for the Cape Fear; and be it further

*Resolved*, That we also express to the committee our earnest hope that this Congress will approve and speed the completion of both the Cape Fear and the Neuse River projects as are necessary and proper.

THE MAYORS' ASSOCIATION OF WAKE COUNTY,
By BEN HYCOCK, *President.*

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RESOLUTION

Whereas the board of commissioners of the town of Asheboro wish to insure an adequate supply of water for domestic and industrial use in a growing community, and

Whereas the long-range planning recommendation of our engineers favor a water supply source to the north, particularly Deep River which runs through the city of Randleman, and

Whereas plan A of the Army Corps of Engineers for the Cape Fear River Basin proposes construction of a dam and reservoir on the Deep River at Randleman, and

Whereas the town of Asheboro would have water rights reserved for use by the municipality thus insuring us of an adequate supply of water for many years to come: Now, therefore, be it

*Resolved by the Board of Commissioners of the Town of Asheboro*, That (1) the Public Works Committee of the House of Representatives and the Senate of the United States be requested to give favorable considerntion to plan A of the Corps of Engineers Cape Fear River Basin plan, (2) the Congress of the United States be requested to act favorably on plan A of the Corps of Engineers Cape Fear River Basin plan; (3) approval by Congress of plan A would benefit the town of Asheboro by providing the municipality with an adequate supply of water to meet our future needs.

Passed unanimously this 12th day of March 1963.

Attest:

JOHN C. BUNCH, *Mayor.*
CHARLES F. HUGHES, *Town Clerk.*

CITY OF THOMASVILLE,
*Thomasville, N.C., April 19, 1962.*

Hon. B. EVERETT JORDAN,
*U.S. Senator,*
*Senate Office Building, Washington, D.C.*

DEAR SIR: Enclosed is a resolution passed by the city council of the city of Thomasville at their regular meeting of April 16, 1962, concerning water conservation and flood control in the Cape Fear River Basin. The resolution is self-explanatory and indicates the sincere interest that the city council has in this matter.

Your consideration of this resolution will be very much appreciated.

Very truly yours,

EVAN NORTON,
*City Manager.*

Enclosure.

*To: Hon. Sam J. Ervin, Jr., and Hon. B. Everett Jordan, U.S. Senators; Hon. A. Paul Kitchin and Hon. Harold D. Cooley, U.S. Congressmen:*

At a regular meeting of the city council of the city of Thomasville on the 16th day of April 1962, 7:30 p.m., the two proposals concerning the water conservation and flood control in the Cape Fear River Basin was discussed by the council:

The city council, after much thought and discussion of the matter, is of the opinion that while the city of Thomasville and its residents would not be directly affected by the plan known as plan A of the Corps of Engineers, which proposes the construction of three dams, we feel that the city and its citizens, as well as the other cities and towns in the Piedmont, would be indirectly affected by the plan. We certainly think that plan A would do the most good and benefit not only for the area directly affected but also the entire Piedmont section of North Carolina.

It is our sincere opinion that said plan would promote greater industrial development in the State of North Carolina and the Piedmont area and provide increased recreation, tourist trade and fishing facilities as well as provide a possible water supply for a large area surrounding the proposed dam sites.

It is also the opinion of the council that the said proposed plan A of the Corps of Engineers would best serve the projected needs of the surrounding areas affected by the proposed dams and insure to their benefit in the overall, long-range contemplated planning of this area: Be it therefore

*Resolved*, That the city council of the city of Thomasville hereby endorses and supports the preliminary proposed plan A of the Corps of Engineers for the construction of three dams to be located at New Hope, Randleman, and Howards Mill for water conservation and flood control on the Cape Fear River Basin, and further that a copy of this resolution be made available to all parties interested in said preliminary proposal plan; that a copy of this resolution be forwarded to the two U.S. Senators from North Carolina, Hon. Sam J. Ervin, Jr., and B. Everett Jordan, and also to Hon. A. Paul Kitchin and Hon. Harold D. Cooley, Congressmen from the Eighth and Fourth Districts of North Carolina.

The above resolution was unanimously adopted on motion of Mr. Wilson, seconded by Mr. Johnson.

This the 16th day of April, 1962.

GEORGE L. HUNDLEY, *Mayor.*
EVA JONES, *City Clerk.*

NORTH CAROLINA,
*Davidson County:*

I, Eva Jones, city clerk of the city of Thomasville, do hereby certify that the foregoing resolution is a true and correct copy of a resolution concerning the water conservation and flood control in the Cape Fear River Basin which was duly passed by the city council of the city of Thomasville at a regular meeting held on the 16th day of April 1962, and which appears in the minute book of the said city council of the city of Thomasville.

This the 19th day of April 1962.

EVA JONES, *City Clerk.*



LEE COUNTY, N.C.,
*Sanford, March 20, 1962.*

Hon. B. EVERETT JORDAN,
*U.S. Senate,*
*Washington, D.C.*

DEAR SENATOR JORDAN: Enclosed please find certified copy of resolution with respect to reservoir projects in the Cape Fear River Basin, which was passed by the Board of County Commissioners of Lee County on the 2d day of January 1962.

Yours truly,

KENNETH R. HOYLE,
*Clerk.*

Enclosure.

RESOLUTION WITH RESPECT TO THE PROPOSED RESERVOIR PROJECTS IN THE CAPE FEAR RIVER BASIN

Whereas the U.S. Army Engineers have filed a report of their findings and recommendations for the development and conservation of water resources in the Cape Fear River Basin; and

Whereas the report proposes a reservoir project at the New Hope site on the Haw River; and

Whereas the Board of County Commissioners of Lee County favor the construction of said dam as being in the public interest; Now therefore, be it

*Resolved by the Board of County Commissioners of Lee County as follows:* That they urge and recommend that the New Hope project on the Haw River be authorized for construction by the Federal Government in the interest of flood control, water-quality control, and recreation.

CERTIFICATE

The foregoing resolution was duly adopted by the Board of Commissioners of the County of Lee at a meeting on the 2d day of January 1962, and appears in the minutes of said board.

Witness my hand and official seal, this the 20th day of March 1962.

KENNETH R. HOYLE,
*Clerk, Board of Commissioners, County of Lee.*

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WAKE COUNTY BOARD OF COMMISIONERS,
*Raleigh, N.C., May 21, 1962.*

Hon. B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: I appreciate your sending me a copy of your statement before the Subcommittee on Public Works Appropriations on May 15, 1962. I appreciate sincerely the work you are doing and the support you are giving to the Cape Fear River project and your support of the large dam as the vital part of this program. We hope that the proposed dam at New Hope in the Cape Fear River Basin can soon become a reality and I'm sure it will be with your continued effort and support.

The people in this territory with whom we are acquainted are certainly back of you in this proposal.

Respectfully yours,

BEN W. HAIGH,
*Chairman.*

COUNTY OF MOORE, N.C.,
*Carthage, N.C., January 6, 1962.*

SENATOR B. EVERETT JORDAN
*Washington, D.C.*

DEAR SENATOR JORDAN: We, the county commissioners of Moore County, would like to go on record as being in favor of the plans being made for the dam at Howard's Mill in Moore County.

Yours truly.

L. B. REYNOLDS,
*Chairman, Moore County Commissioners.*

RESOLUTION PASSED AT SPECIAL MEETING OF THE RANDOLPH COUNTY BOARD OF COMMISSIONERS, MARCH 12, 1963

That whereas, Randolph County will be affected by the Cape Fear River flood control projects; and

Whereas, there presently appears to be two separate and distinct plans for control of floodwaters of the Cape Fear Basin, and after an investigation into the matter it appears to the Randolph County Board of Commissioners that it would be for the best interest of all of the people of Randolph County that the Corps of Engineers' plans for three large dams located in Chatham, Moore, and Randolph Counties would be preferable to the plan for building a series of small dams in the area and would better fit the needs of the people of Randolph County and surrounding areas; and

Whereas it appears that the building of a large dam at Randleman, N.C., would supply a vital need for controlling the floodwaters of Deep River that have in the past caused serious damage to the area in Randolph County and would, in addition thereto, provide a large and adequate water supply for industrial and recreational purposes in the area; and

Whereas, it appears to said board that the securing of land, the condemning of property, and the costs involved in building the hundreds of small dams needed in the small dam plan would be impractical, if not impossible, would place an undue hardship on the people in the area, and would not be for the best interest of the people of Randolph County and the adjoining areas: Now, therefore, by unanimous

*Resolution*, The Randolph County Board of Commissioners do hereby endorse and recommend the Corps of Engineers' plans for large dams in regard to Cape Fear flood control projects, and oppose the plan for building a series of small dams throughout the area.

The above is hereby certified to be a true and correct copy of a resolution duly passed and recorded in the minutes of the Randolph County Board of Commisisoners, special meeting, March 12, 1963.

ARNNIE SHAW,
*Clerk of the Randolph County Board of Commissioners.*

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KIWANIS CLUB OF CAPE FEAR,
*Fayetteville, N.C., March 16, 1962.*

Hon. B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: The members of the Kiwanis Club of Cape Fear, 52 in number, are vitally interested in the fulfillment of the plan for harnessing the Cape Fear River, as proposed by the U.S. Corps of Engineers, with three basic reservoirs provided by dams at New Hope, Howard's Mill, and Randleman.

From all appearances, Congressman Harold Cooley, in endorsing the extremely preliminary proposal submitted by the Soil Conservation Service, is considering the welfare of less than 500 people over that of over 1 million.

We are at a complete loss to understand this apparent disregard for an obvious solution to a problem so important to the economy of the 18 counties comprising the watershed for the Cape Fear River.

We stand ready to lend our assistance and support to this most worthwhile cause if you will but advise us where our efforts might be of the most value.

Yours most sincerely,

MERRITT F. HARRISON,
*Secretary.*



PITTSBORO CHAMBER OF COMMERCE,
*Pittsboro, N.C., September 1, 1961.*

Hon. B. EVERETT JORDAN,
*Senate Office Building, Washington, D.C.*

DEAR SENATOR JORDAN: In a poll taken recently among members of this chamber of commerce, the result shows that the members are 4 to 1 in favor of the building of the large dam on Haw River in eastern Chatham County. We appreciate your support of this project and we hope you will do everything you can to initiate and expedite the work.

We thank you very much for the able job of representation you are doing and you have our best wishes.

Sincerely yours,

GEORGE T. VINCENT,
*Secretary.*

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RANDLEMAN CHAMBER OF COMMERCE,
*Randleman, N.C., April 4,1962.*

Hon. B. EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

DEAR MR. JORDAN: The City Council of the City of Randleman adopted a resolution approving the plan of the Corps of Engineers known as plan A which covers the construction of a series of dams at Randleman, New Hope and Howards Mill.

In the interest of flood control on the lower Cape Fear, and in particular water conservation in the upper areas, our group wholeheartedly endorses the action taken by our city council and urge you to use your efforts in behalf of the people you represent to obtain approval of this plan.

Yours very truly,

ROBERT H. ALLRED.

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SILER CITY, N.C., *March 13, 1963.*

Senator EVERETT JORDAN,
*New Senate Office Building, Washington, D.C.:*

Two hundred acres my land be flooded New Hope Dam, but urging this project be approved. Most Chatham residents for Engineers recommendation.

R. GLENN HANCOCK,
HANCOCK LUMBER CO.,
*Bonlee, N.C.*

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RICHMOND VA., *February 24, 1963.*

In re proposed New Hope Dam, Chatham County, N.C.
Hon. EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

SIR: I am a native of Chatham County, N.C., and have numerous relatives residing in Chatham and Lee Counties. I own 184 acres of land along the western side of Haw River, being a part of my grandfather's farm which, incidentally, my family settled on in the year 1730, coming there with a great many of our neighbors from Pennsylvania, mostly Quakers. My mother died when I was a small boy so I was sent to Texas to be raised by my uncle; who, like a great many other Confederate veterans had found it advisable to migrate after Appomattox.

The Government built a flood control dam in northeast Texas, just a few years ago in an area that had never developed and I visited there last summer and it is difficult for one to believe what he sees. Recreation centers had been built at abandoned towns and the whole area seems prosperous and "going places," I visited the Kerr Lake at Clarksville, Va., this week and the area there has experienced the same thing.

There is no argument that the dam is needed for flood control in the Cape Fear, but the changes it would make on the local area would be remarkable for recreational as well as for industrial development.

I have talked to my relatives, Thomas, Harringtons, Dalrymple, and Scotts in Chatham and Lee and have found them to be unanimously in favor of the dam. They advise me that the people in Williams Township are divided in their opinion in the matter, but the leaders from that section have been able to influence

Congressman Cooley, or vice versa. We cannot understand why Congressman Cooley is so adamant in his objection to the project.

I would like to improve my property and bring my family back to North Carolina to live, and am financially able to do so, but my wife and children will not cooperate with me because they claim that Chatham County has gone to seed, etc., and there is nothing there for them to do, which is true. The proposed lake would change all that.

I appreciate your efforts in the past in this matter and look forward to you and your great associates to win for this project and not have it thwarted by the ill-advised prejudices of just one man.

Sincerely yours,

EDWARD F. GUNTER.

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SILER CITY, N.C.,
*March 13, 1963.*

Senator EVERETT JORDAN.
*New House Office Building, Washington, D.C.:*

Strongly request approval of New Hope Dam in Chatham County. Our Chatham people want this project.

HANCOCK POULTRY CO.,
B. M. HANCOCK,
*Bear Creek, N.C.*

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MONCURE, N.C., *April 10, 1962.*

MAYOR BUTLER,
*City of Fayetteville,*
*Fayetteville, N.C.*

DEAR SIR: Through a mutual friend I understand that you, along with others, are preparing to meet with our misguided Representative, the Honoralbe Harold D. Cooley, in a public forum debate with regard to the proposed New Hope Dam. Mr. Cooley seems to be trying to put across to the public that Chatham County does not want the dam. This, in my opinion, is not the true picture as he is representing a small minority group which is not indicative of the county as a whole. I believe that if the question were to be put to a vote that the total county would be a least 75 percent for it.

I am speaking as a would-be displaced person. My farm and home, and the same of my father and mother, would be covered by water or isolated if the dam is built. We feel that we would get paid for property used and that the remaining part would greatly increase in value. I am in a position to know that property values have already increased in anticipation of this project.

This is something that will affect thousands for years to come and we cannot understand why Mr. Cooley would try to block such a measure that means so much to so many. We believe this measure will go through with or without Mr. Cooley's support but we wish he could "see the light" then it would be a sure thing.

Trusting that the necessary congressional support will be forthcoming and that we can have the big dam, I am,

Yours very truly,

CHARLES S. POE.

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MONCURE PROMOTIONAL ORGANIZATION,
*Moncure N.C., April 10, 1962.*

Mayor BUTLER,
*Mayor of the City of Fayetteville,*
*Fayetteville, N.C.*

DEAR MAYOR BUTLER: We appreciate very much the work your city is doing in behalf of the New Hope Dam project. We would like to go on record as favoring this project as we feel that it is a big and important thing for our county and State and especially for our immediate township (New River) which we feel is 95 percent for the dam.

We think our Representative, Hon. Harold D. Cooley, is selling the county short in this matter as he is representing a small minority group and has not bothered to find out just how many in the county as a whole are eager for the big dam.

We are in a position to know that with the exception of area to be covered by water and the politicians of the county that there are no other groups in the county that do not favor this project. We can understand the opposition of the



would-be displaced persons, but we cannot understand why it would be blocked by Mr. Cooley or our local politicians.

Trusting that the forum to be held next Sunday will help rather than deter the project, we remain,

Yours very truly,

O. M. COVERT,
*President.*
T. S. CRUTCHFIELD.
*Secretary.*

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PITTSBORO, N.C., *March 5, 1962.*

Senator B. EVERETT JORDAN,
*Senator From North Carolina,*
*Washington, D.C.*

DEAR SENATOR: First, I fully support the corps' proposal for a large dam at New Hope. I feel that it will be an asset to Chatham County. I am a native of Chatham County and feel the need for something that will benefit us, or in the future our children.

I hope the project will be accepted and finally the dam will be built.

Secondly, I am asking for a book, if possible, on forest pests of both diseases and insects, or information on where to get literature on the same.

Thank you very much. You have my support.

Yours truly,

CARROLL E. BURNETTE.

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PITTSBORO, N.C., *March 8, 1962.*

Senator B. EVERETT JORDAN
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR: We thank you for your work in behalf of the Haw River Dam which will bring great wealth to the citizens of Chatham County. It is my opinion that three-fourths of the citizens are in favor of this dam.

With best wishes,

Yours sincerely,

THOMAS A. THOMPSON.

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MONCURE MOTOR CO., INC.,
*Moncure, N.C., April 9, 1962.*

MAYOR BUTLER
*Mayor of the City of Fayetteville,*
*Fayetteville, N.C.*

DEAR SIR: I live in Chatham County about 2 miles from the proposed New Hope Dam project. Our town is located in the township of Haw River which would be the location of the dam. To my knowledge I do not know of anyone in this township that does not favor the project.

Mr. Cooley would have the public believe that Chatham County does not want the dam, but this is not true. He is representing a small minority group composed of the individuals who would be displaced by the water. He has enlisted the support of our county officials which is something a lot of us can't understand.

I know that the would-be displaced citizens have a legitimate right to fight the measure, but in this group it is not 100 percent. In our township there are three families that would be flooded from their homes, but the three of them are favoring the dam. They feel that they will be paid for the property used, and that what is left will have an increased value. I do know that property values have already increased around here in anticipation of this project which we believe will still go through.

Thanking you and your city for the fight you are waging on this matter that so vitally concerns us all. I remain,

Yours very truly,

T. SAM CRUTCHFIELD.

MONCURE MOTOR CO., INC.,
*Moncure, N.C., February 19, 1962.*

Senator B. EVERETT JORDAN,
*Washington, D.C.*

DEAR SENATOR: I would like to be placed on your mailing list to receive any pertinent information relative to the New Hope Dam project.

Our town is located immediately below the damsite and the people in Haw River Township are I believe unanimous for the passage of the bill favoring the big dam.

Please do all you can for this project as we believe it would boost the economy of Chatham County more than anything that might happen to our area.

Yours very truly,

T. SAM CRUTCHFIELD.

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DURHAM, N.C., *February 19, 1963.*

Senator B. EVERETT JORDAN,
*Washington, D.C.*

Re Cape Fear River project heartily concur with Senator Jordan that Corps of Engineers high dam is only way to get immediate action on Cape Fear and obtain recreation size lake in research triangle area. Triangle area badly needs large lake for recreation as ex-Tennessee Valley people know. High dam and lake would bring considerable recreation money into this area in addition to flood control advantages.

CHEM STRAND RESEARCH CENTER, INC.

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THE STANDARD SUPPLY CO., INC.,
*Raleigh, N.C., March 13, 1963.*

Senator B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: I am writing in behalf of this corporation, its officers, directors, and stockholders, to express our approval of the New Hope Dam project as proposed by the Army Engineers.

Our corporation has 778 acres of land in Chatham County in the New Hope Valley, with a tobacco allotment of 16.4 acres. If the take line is at the 245-foot contour, it appears that we will lose approximately 386 acres, or almost exactly one half of the property.

However, we strongly favor the "big dam concept" as set forth by the Engineers for the following reasons:

(1) We believe that economically our remaining land will be much more valuable than the entire acreage is at present, since we contemplate developing it into large estate type lots which will be extremely desirable and valuable due to their proximity to the lake. Certainly, as many as 150 of these type lots could be developed from the remaining 392 acres, with valuations (for Chatham County tax purposes) probably running into millions, after the homes are built. As we understand it, we would be allowed to move our allotments to other farms, so that agriculturally nothing would be lost.

(2) We further feel that the dam is much needed for flood control and for sewerage control in the entire basin, to the great benefit of a large portion of the population of North Carolina.

(3) Also, of course, water conservation is now not only a local or statewide problem, but is rapidly assuming great national and even world significance.

(4) The expenditure of $25 million, in this relatively poor section of the State, should have a very beneficial influence on the economy of the entire region.

(5) The boating, fishing, and other recreational opportunities afforded by this lake will no doubt be tremendous.

Thank you for your attention in this matter, and I hope you can come to an early conclusion. Everyone is becoming tired and frustrated with the seemingly interminable delays.

Cordially yours,

JOHN A. WILLIAMS, Jr., *President.*



C. WHID POWELL INSURANCE AGENCY,
*Chapel Hill, N.C., January 23, 1962.*

Senator B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: I am enclosing a resolution from Chapel Hill-Carrboro Merchants Association-Chamber of Commerce supporting the New Hope Dam. I hope to obtain one also from the Chapel Hill Board of Aldermen.

Also, I am in contact with the university and Dr. Henry Jordan in Cedar Falls.

Warm regards.

C. WHID POWELL, Jr.

Enclosure.

RESOLUTION

From: Chapel Hill-Carrboro Merchants Association-Chamber of Commerce.
To: U.S. Corps of Engineers, Washington, D.C.

Whereas we realize the need for New Hope-Moncure Dam on the Cape Fear River Basin because of the following:

1. Need for flood control.
2. Need for recreation which the New Hope permanent pool would provide.
3. Wildlife reserves.
4. Water conservation.
5. An amount of soil conservation.

We therefore request that the Corps of Engineers proceed to construct the Moncure-New Hope Dam.

We further request that the U.S. Corps of Engineers determine if a need exists for intermediate dams that cannot be constructed under the provisions of Public Law 566 (Soil Conservation Department small dam law) and that action be taken to construct such dams where the need exists.

And further that the soil conservation service be requested to put into operation Public Law 566, projects when initiated by local interests, for their recommendation for 212 small dams in the Cape Fear River Basin.

Resolved by the Chapel Hill-Carrboro Merchants Association and Chamber of Commerce this 9th day of January 1962.

SION D. JENNINGS,
*President.*
JANE WHITEFIELD,
*Secretary.*

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O. M. COVERT TRUCKING CO.,
*Moncure, N.C., March 2, 1963.*

Hon. B. EVERETT JORDAN,
*U.S. Senator from North Carolina.*

DEAR SIR: Under separate cover I am mailing you pictures of the flood September 1945, taken from Haw River bridge on U.S. Highway No. 1, three-quarters of a mile below proposed damsite. Hoping they will be of assistance to you in regard to the 110-foot dam.

The people in Chatham County below the damsite are with you 100 percent.

Very truly yours,

OTIS M. COVERT.

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CHAPEL HILL, N.C., *October 1, 1962.*

Senator EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

DEAR SENATOR JORDAN: Your fine actions regarding the New Hope Dam are sincerely appreciated by myself, my family, and by more than 90 percent of the people I have talked to lately.

It would appear that the proponents of the high dam are quiet, but the opponents are making a lot of noise.

I sincerely believe that most of the folks in Chatham County favor the high dam but are not outspoken since they do not wish to be discourteous to the folks that will be inundated.

Once the dam is a fact, most of them will forget the arguments—much like Buggs Island Lake on the Carolina-Virginia line.

Again, on behalf of a family of about 26 and a voting family of about 14, I wish to thank you for your efforts toward the establishment of a high dam.

Thank you,

STANLEY PEELE, *Attorney at Law.*

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ELDER MOTOR CO.,
*Siler City, N.C., September 19, 1962.*

Hon. HAROLD D. COOLEY,
*House of Representatives, Washington, D.C.*

DEAR SIR: I have been folowing the progress of the proposed big dam on the upper Cape Fear River to be located in our county and I certainly wish to enlist your support for the big dam.

One of the greatest assets to any section of the country is a large supply of fresh raw water and with the close proximity of the industrial triangle and also the cities of Raleigh, Durham, Burlington, Chapel Hill to this apparently almost unlimited supply of water it is certainly a shame to allow this most valuable asset to flow into the ocean.

There is no way of telling how much this great basin of water would be worth to Piedmont, N.C.

I have discussed similar projects with residents in other areas and they advised that projects of this kind have been the greatest single development that have ever benefited their respective areas. In addition the majority of the people in this section are 100 percent for the big dam.

Please allow me to request your 100 percent support for this water storage, flood control, and great recreation possibilities for our country and Piedmont North Carolina.

Yours very truly,

HARLAND H. ELDER.

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MONCURE, N.C., *March 6, 1963.*

DEAR SENATOR: I have read with pleasure your remarks to the Senate on the Cape Fear River Basin, and I wish to congratulate you for bringing this matter to life again.

As I am a citizen of Chatham County, N.C., and a landowner on the west side of Haw River where the proposed damsite is supposed to be located, I would like to offer a suggestion or two.

As you are well aware there has been a lot of opposition to the building of a high dam at the mouth of New Hope Creek because it would cover so much valuable land and I think this is one reason the work or report has been held up for so long. For the past several years I have had various delegations visit my farm and ask a lot of questions as to damages to crops and soil erosion and as to size of dam, etc. Now in regard to how I stand on this matter: I want to make it very clear that I am 100 percent for this project or dam which ought to have been built 50 years ago. I have seen floods so bad on or in Haw River just below the proposed damsite carry away freshly planted crops of corn and wheat and washing soil away as deep as the land had been broken or plowed.

I would like to say I am 100 percent in favor of a big high dam as a small dam will not do the job, of course they might do some good but will not do the whole job.

I am speaking from experience from what I have seen and experienced from a small dam of Cape Fear Power Plant belonging to Carolina Power & Light Co., of Raleigh, N.C. Since this dam was built in 1908 and later repaired and raised higher, and at the present time they are repairing this same dam, and ever since this dam was first built every time there comes a flood in the Haw and Deep Rivers, it has caused the floodwaters to spread over more land and does not stop the erosion of the soil. Small dams will not do the job and would be a waste of money to build small dams on either Haw or Deep River. It is true a high dam at New Hope on Haw River would cover a lot of land and too it would make one of the finest lakes and furnish more water than 100 small dams scattered up and down the river which would, in the long run, cause more flooding than ever.



I trust you will take time to read this letter and if I can furnish you with further information I will gladly do so. I am not looking for a job, I am now in my 82d year and I trust I may live to see the dam built and if it is built I shall name it "the Jordan Dam."

I wish to remain,

Yours very truly,

C. C. POE,
*Ex Register Deeds, Chatham County.*

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[From the Raleigh News and Observer, Mar. 13, 1963]

The proposal by Senator Jordan to add small dams upstream from the much-needed New Hope Dam in the development of the Cape Fear River Basin offers an excellent opportunity for a compromise of divergent views.

Moreover, the proposal is sound from the standpoint of overall development of the river basin.

Necessary now, however, is immediate action on the entire program. Development of the Cape Fear River Basin has been too long delayed by petty opposition to the Corps of Engineers plan, a plan recommended after many long years of study.

It is time to get on with the job of developing the basin so that the full potential of this great region can be realized.

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[From Winston-Salem Journal, Jan. 28, 1963]

OBSTRUCTION ON THE CAPE FEAR

Representative Harold Cooley's request for an indefinite delay in House Public Works Committee hearings on the proposed New Hope Dam looks suspiciously like the obstructionary moves he made in this matter during the last session of Congress.

Mr. Cooley has opposed the Army Corps of Engineers proposal to build a large dam at New Hope since it was first advocated. He has advanced an alternative proposal, said to be feasible by the Soil Conservation Service, which calls for 232 smaller dirt dams on tributary streams. But since an elaborate small-dam conservation program of this sort, as Senator Jordan has pointed out, would require many years to complete and would not be adequate, both the State's Senators and all the eastern North Carolina Representatives except Mr. Cooley have given strong support to the New Hope project. His principal reason for fighting it apparently is that waters from the proposed dam would inundate some valuable farmland in one county (Chatham) in his district.

During the past session of Congress the House committee made the money available for the New Hope Dam, but Mr. Cooley blocked final authorization of the project on the ground that no action should be taken before a public hearing was held. At the time he said he would favor a public hearing early in this session of Congress. Now he contends that he needs more information from the Soil Conservation Service and refers to a report by Prof. Edward H. Wise of State College which shows, he says, that floodwaters in the basin could be controlled by as few as seven dams.

No one, of course, can object to a congressional committee having the fullest information available before approving a program of this scope. But since both the Army Engineers and the Soil Conservation Service have made studies of the Cape Fear Basin there seems to be no reason why this information should not be available at an early hearing. Is the presentation of such data all Mr. Cooley seeks now, or has he thrown in the State College professor's report to divert attention and delay action?

There probably is a need for a greater measure of cooperation between the Army Engineers and the Soil Conservation Service in flood control. The large dams constructed by the Army Engineers are definitely needed for flood control and reserve water supply purposes. The smaller dams and other conservation methods of the Soil Conservation Service are also needed in many areas. So the two programs should complement rather than replace each other. But the adamant obstructionary attitude on Mr. Cooley's part could postpone indefinitely the Cape Fear Basin's chance to get the benefits of either program.

[From the Raleigh News and Observer, Jan. 28, 1963]

## WHY?

Congressman Harold Cooley's latest maneuver against the New Hope Dam project is as unwarranted as it is disappointing. It can only be taken to mean that Cooley is either unreasonable in his desire to kill this project or intends to toy with it in a manner unbecoming to his role as "dean of the North Carolina delegation" in Congress as well as detrimental to the State's advance.

After managing last Friday to put off hearings on the New Hope program scheduled for February 8, Congressman Cooley was quoted as saying his action "certainly was not a dilatory move on my part" because more time for preparation for the hearing is needed.

The fact is, however, that everyone directly involved in this matter has had more than enough time to prepare for the February hearings set up by a House Public Works Subcommittee, but now blocked by Cooley. Indeed, there is sufficient reason to believe that ample hearings and debate on this matter have already been held. Cooley himself attended hearings on the matter in Chatham County where the Corps of Engineers proposes to build a dam to control flooding and conserve water in the Cape Fear River Basin.

The unfeasible, almost inconceivable plan of 232 small dirt dams which Cooley says he prefers is simply no substitute for the well-considered, practical and already long-delayed New Hope program recommended by the U.S. Corps of Engineers. If Congressman Cooley has some other motive for opposing the New Hope project, he ought to tell the people of North Carolina what it is.

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[From the Greensboro Daily News, Feb. 16, 1962]

## TIME OF DECISION

Senator B. Everett Jordan, endorsing plans for the New Hope Dam project as part of the Cape Fear River Basin development, made a basic point which needs to be hammered home to State and local leaders.

Senator Jordan took cognizance of the division of recommendations and opinion. The Army Engineers have proposed the program which includes the New Hope Dam, along with several other smaller dams, including one at Randleman.

The Soil Conservation Service, on the other hand, has endorsed a program to build 232 smaller dams on tributaries leading into the Cape Fear.

It is wise and proper that arguments for both these programs be heard and weighed. That opportunity will presumably be offered in a public hearing at Pittsboro Friday and then before congressional committees and the Congress itself.

Explaining his decision, Senator Jordan stresses that "we have a choice of doing this or waiting many years, perhaps generations, to otherwise harness the Cape Fear. * * * The time has come when we in North Carolina must make some basic decision about the course we should follow in developing our water resources—for the needs we have now and for the known needs we will have in the future."

That is indeed true. The Daily News is pledged to conservation of soil and water resources alike. We are confident that the dual causes, which actually become one in their public interest and concern, can be served by agreement. Surely they will not be served by prolonged arguments or a disagreement which might hold up indefinitely or block action which has already dragged along for years since the Cape Fear Basin development was Senator Scott's dream.

The stakes are tremendous and the needs great. And with realization of these facts, North Carolinians should get together on a plan that will speed a long-overdue and still far from attained development on its way. Wasted soil and tumbling waters exact a more costly toll with each passing day.



[From the Wilmington Star, Feb. 15, 1962]

## CHOICE IS CLEAR ENOUGH

In his endorsement of the Cape Fear River Basin flood control project as recommended by the U.S. Army Corps of Engineers, Senator B. Everett Jordan touched upon a point that should be recognized by all persons interested in this proposal.

It is simply that if this recommendation is not carried out, the region will have to wait many years, perhaps generations, to otherwise harness the Cape Fear with a development program and flood control system.

The urgency of such a program has been well illustrated over the years, yet delays have developed over differences between the recommendations of the Engineers and the Soil Conservation Service, which agencies have conducted studies and surveys of the river basin.

Those differences may yet further delay the activation of such a project, but if enough support can be gained among the people and the congressional delegation, we may not have to wait years, or generations, to see this important work started.

The support of Senator Jordan is welcomed. But against this is Representative Cooley's support for the Soil Conservation Service's plan. He will bring two subcommittees to Pittsboro tomorrow to hold hearings on the project. Perhaps, after these have been conducted, Representative Cooley, too, will take the same realistic view as that taken by Senator Jordan, Governor Sanford, and many others in both public and private life.

The important thing is to get the project started. That is the choice, or accept the alternative of waiting many years, perhaps generations. Frankly, we do not see how there could be any debate over which choice to make.

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[From the Winston-Salem Journal, Feb. 17, 1962]

## THE CASE FOR THE NEW HOPE DAM

Senator B. Everett Jordan makes out a good case for the New Hope Dam project of the Army Engineers. This proposed project is one of two which have been offered by Federal agencies for the development of the water resources of the Cape Fear River Basin. The Soil Conservation Service has proposed a broad flood control and conservation program featuring a system of 232 small dams on basin streams.

The two proposals thus revive the old controversy on whether conservation of natural water resources can be more effectively attained by building a few relatively large river dams or by building a far more elaborate system of small dams on river tributaries tied in with other soil and water conservation projects.

There is a possibility, as Senator Jordan concedes, that over the long pull of the decades a network of small dams would be more desirable from the standpoint of stream pollution control, industrial, and municipal water supply, recreation and irrigation. But, as the Senator points out, the Soil Conservation Service program would require basic changes in the Federal law, and involve the enactment of a special act by the State general assembly to create a State agency to acquire the necessary land, easements and rights-of-way. In all probability also, several years of engineering work and planning would be necessary before even a start could be made on the project.

All these factors, plus the question of whether the more elaborate small dam system would actually be more beneficial to the basin in the long run, are involved in the SCS proposal. In endorsing the Army plan, Senator Jordan points to the need for early action in furthering the development of North Carolina's water resources, and expresses the opinion that "it would take many years, even

generations, to bring to completion a system of 232 dams envisioned by the Soil Conservation Service." Viewed in the light of the time involved in bringing about changes in State and Federal laws, obtaining land and easements for scores of small watersheds and completing the necessary projects, this seems to be a reasonable assumption.

Meanwhile, the industrialization of North Carolina continues to go forward rapidly, thus steadily creating new water supply and stream control problems. Can the State, under these circumstances, afford to wait many years, or as Senator Jordan says, even generations, to develop the water resources of the Cape Fear and other river basins?

The arguments on both sides, of course, deserve the careful study of Congress and the North Carolina public. But in this study sight should not be lost of the fact that the Army Engineers' New Hope Dam project would make possible an early water resource development which otherwise might not be brought about for decades. No new legislation is needed and Congress can act quickly on the Army project. The Army plan also envisages the establishment, as needed, of both large and small dams for water conservation and stream control.

The State has become increasingly water conscious in recent years. Out of this consciousness has grown the stream pollution control program, the creation of a State water board, and the intensified efforts resulting in the construction of the Wilkesboro Dam on the Yadkin River. This same consciousness and concern can help speed water resource developments in other areas of the State. It should assure wide support for Senator Jordan's stand on the New Hope Dam project.

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[From the Raleigh News and Observer, Feb. 15, 1962]

### A Crucial Choice

Senator B. Everett Jordan is serving the best interests of North Carolina in joining Governor Sanford in an effort to obtain congressional approval of the Cape Fear Valley Dam project recommended recently by the U.S. Army Corps of Engineers.

Although the Senator only yesterday gave formal endorsement in Washington to the Engineers' latest proposal, he has been consistent in his efforts to follow up plans initiated by the late Kerr Scott to harness the Cape Fear River for the benefit of all the people of North Carolina.

Obviously it will be a tragic blow to hopes for the future development of North Carolina if this project is allowed to go down the drain in a fight that appears to be shaping up between its advocates and those who support the Soil Conservation Service's alternate proposal.

Under the Engineers' proposals, a big dam to cost about $25 million would be built at New Hope where the New Hope and Haw Rivers join to form the Cape Fear. Two smaller dams would be built in the basin to provide adequate control of waterflow. This project could be begun under existing law within months.

On the other hand, no less than 232 small dams would be constructed under the Soil Conservation Service's impractical proposal. The main argument for this proposal seems to be that it will allow for flexibility, permitting the shifting of the proposed multitude of little dams from one site to another when someone or some interest opposed the flooding of their land. Actually, this flexibility would very likely bog this entire matter down in endless haggling that would doom the project for years if not generations to come. It would require new legislation in Congress and local initiative for each of the multitude of dams involved, an initiative that can hardly be conceived, much less expected.

It is unfortunate that any people will have to be displaced from their homes or farms in the Engineers' proposal. However, this project—advanced in similar form in previous years—has already been scaled down to affect only about 110 families, less than a third of those who would have been displaced previously under proposals by the Engineers. And the future economic development of the whole State of North Carolina is tied up in this matter.



The choice between the Engineers' proposals and those of the Soil Conservation Service basically boils down to a choice between economic progress and a better life for thousands of North Carolinians or the continued economic stagnation of a great region of North Carolina. The entire North Carolina congressional delegation ought to join Governor Sanford and Senator Jordan in support of the economic progress of their State.

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[From the Fayetteville Observer, Jan. 17, 1962]

### Stop the Floods: By Whatever Means

It goes without saying that the people in the Fayetteville area are more than a little disappointed at the hostility displayed by Representative Harold D. Cooley toward the construction of the proposed New Hope Dam to prevent floods in the Cape Fear River.

Cooley as chairman of the House Agriculture Committee could be expected to favor the 212 little dam control method proposed by the U.S. Soil Conservation Service over the high dam and big lake method favored by the U.S. Army Corps of Engineers.

Additionally he represents Chatham County in Congress and therefore logically has an open ear to the protests of the citizens of Chatham who do not want their farms and homes covered by the water which would be impounded by the New Hope Dam.

At the same time Cooley is a sensible man and one not calculated to permit either prejudice or self-interest to stand in the way of a project which would be of inestimable benefit to many residents of his home State, even if those residents were not of his own congressional district.

For that reason it would be very unwise for the residents of the Fayetteville area, and other areas along the banks of the Cape Fear River to write off the project as predoomed because of Cooley's present lack of enthusiasm for it.

Rather there is a definite challenge here for the area organization supporting the flood control project to plan now to present its case in its best light before the Agriculture Committee hearing which Cooley has scheduled for February 16 at Pittsboro.

We may have our own definite opinions on which system would best protect us from disastrous Cape Fear River floods, but if we want Cooley and his committee to have open minds, we likewise should go into the committee hearings in a spirit of open-minded helpfulness.

Our particular stake in the project is not what kind of flood control should be employed as long as whatever kind of control is decided upon is effective control.

We, in the Fayetteville area, definitely are looking for an end rather than a means.

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[From the Southern Pines Pilot, Jan. 4, 1962]

### Cape Fear River Basin Dam Projects Endorsed by County Commissioners

A letter will go from the Moore County commissioners to U.S. Senator B. Everett Jordan, expressing the Moore board's approval of the recently announced proposed Cape Fear River Basin Dam proposals.

The action was taken on motion of Commissioner John M. Currie on Tuesday. He recalled that he had represented this county at a Fayetteville meeting some years ago when the Cape Fear proposal was in the early planning stages.

The recently announced plan calls for dams on the Haw River, a few miles north of Moncure; on Deep River at Howards Mill in Moore, less than a mile south of the Randolph County line, almost due north of Robbins; and a third dam on Deep River, further north in Randolph.

Haw River and Deep River converge near Moncure to form the Cape Fear.

The dam on the Haw River, if the project receives congressional approval, would be the first to be built. The Howards Mill Dam would create a considerably smaller, but yet large, lake, most of which would be Randolph County.

However, Commissioner Currie pointed out, the Howards Mill Dam would produce several benefits for Moore, including improved water supply in the area, nearby recreational opportunities and flood prevention.

Mr. Currie recalled a 1945 flood that washed out dams at Howards Mill and Glendon, forcing costly replacements. Control of flood waters by the Howards Mill Dam and the other Deep River Dam in Randolph County would do much to prevent flood damage all along the course of Deep River in Moore, he said.

Deep River flows from west to east across about two thirds of the extreme upper (northern) portion of Moore County, with many twists and bends, including the famous "horseshoe" bend from which the historic "House in the Horseshoe" takes its name. The house was the scene of a skirmish in the American Revolution.

Adding to the county's water supply by formation of the lake north of Howards Mill might help attract industry, too, Mr. Currie noted.

There was unanimous agreement among board members on his proposal to write Senator Jordan, the Tar Heel senator who has been most active on behalf of the Cape Fear basin project.

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[From the Sanford Herald, Feb. 17, 1962]

ECONOMIC PROGRESS OR STAGNATION

Flood control in the Cape Fear Basin and the economic growth of North Carolina are threatened by the controversy arising over whether to build a big dam or a multitude of small dams to harness the Cape Fear River.

Listening to the testimony of many of those favoring a series of 232 small dams as proposed by the Soil Conservation Service we had a feeling that much of the opposition was based on sentiment with the idea that if they adopt this plan it will be a couple of generations before they get it across and we won't be here and have to worry about it.

On the other hand, a proposal by the U.S. Army Corps of Engineers to build a big dam at New Hope where the New Hope and Haw Rivers join and two smaller dams is an immediate possibility. If approved by Congress, work could be started within months. The Soil Conservation Service's proposal, which hasn't been developed to the extent that the Engineer's plan has, would mean endless haggling, new legislation in Congress and in the North Carolina General Assembly and a enthusiasm for the project in all of the 232 areas where the dams would be located. We doubt whether that much enthusiasm could be generated for the little dams.

Senator Everett Jordan and Governor Sanford both have heartily endorsed the New Hope Dam proposal. Congressman Harold Cooley, in whose Fourth District the dam would be located, has to play politics over this matter as he has to think of election day. People in west Chatham county are more in favor of the big dam than those in the eastern section of the big county. Cooley should remember west Chatham has a larger population than the eastern section.

The big dam proposal offers a quick move for progress and a better life for thousands of North Carolinians. The multitude dam proposal means stagnation as it becomes embroiled in court actions.

Lee County, which apparently failed to have a delegation at the well-advertised Pittsboro hearing, has a big stake in the New Hope dam. This dam will cost about $25 million—a large part of which will be spent in this area. Also the water backed up by the dam will offer fine recreational opportunities.

We hope reason will prevail over sentiment.

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[Editorial from the the Wilmington Morning Star, Mar. 11, 1963]

COMBATING "MISINFORMATION"

The spread of what Senator B. Everett Jordan describes as "misinformation" concerning the large reservoir proposal for flood control in the Cape Fear River Basin needs to be put to rest, and it can be done in a new proposal put forward by the junior Senator from North Carolina.

What is happening is that opponents of the high dam plan have been saying that such a reservoir at New Hope would rule out development of the upper tributaries through smaller dams. This "misinformation" has caused some city and county governments to take stands opposing the high dam, but they have rescinded such action, once they have been correctly informed.



This happened to the Reidsville city council, the Alamance county board of commissioners, and the Durham city council. They all reversed earlier decisions against the dam, when they had obtained all the information needed for a right decision.

Senator Jordan has attributed the misinformation to Soil Conservation Service supervisors who, he said, are located in the area that would be effected by the project.

To counteract this misinformation, Senator Jordan also proposes that the SCS and the U.S. Army Corps of Engineers immediately begin a joint survey and study for the development of small dams and reservoirs on the upper tributaries of the basin, at the same time construction starts on the New Hope dam. This study and survey would show that development of the upper tributaries will not be affected by the large reservoir.

If these two agencies can work together on the Upper Cape Fear River Basin, cities and counties will not be victimized by the misinformation that has been making the rounds. There is no room for more delaying tactics by the opposition. The large reservoir plan should be started as soon as possible.

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HARNETT COUNTY FARM BUREAU,
*Lillington, N.C., March 25, 1963.*

HON. B. EVERETT JORDAN,
*U.S. Senate, Washington, D.C.*

DEAR MR. JORDAN: The board of directors of the Harnett County Farm Bureau have gone on record in support of the building of the big dam on New Hope Reservoir in connection with flood control.

Sincerely,

CARSON GREGORY, *President.*

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[From the Greensboro Daily News, Mar. 13, 1963]

RIVER BASIN PLANS DOVETAIL

Reading between the lines in Washington dispatches, we get the idea that a compromise may be in the offing to break the deadlock on the Cape Fear River Basin development, as it embraces the controversial New Hope high dam.

Senator B. Evertt Jordan, who has led the fight for the New Hope Dam with support of other members of the Tar Heel congressional delegation, minus Representative Harold D. Cooley, has suggested, on the eve of hearings later this week, that the Army Engineers' recommendations and the Soil Conservation Service program be merged. While that proposal may not satisfy the chairman of the House Agriculture Committee who has moved from one reason to another in his high dam opposition, it at least answers the objection of the State grange whose master, Robert Scott, has advocated the small dam plan because "construction of a single, large dam at New Hope would provide flood control from that downstream only. There would be no flood control or water-retaining facilities in the upper reaches of the basin where the most people are located."

Under Senator Jordan's latest suggestion, the New Hope high dam would be constructed to assure flood control downstream and, to some degree upstream, and impound a large volume of water which could be used for recreational and many other purposes as soon as contamination is ended in the upper tributaries of the Haw. Then he would have small dams in the basin's upper reaches to make doubly sure of the purposes which Grange Master Scott emphasizes.

Although costs of the combined project have not been given, they will doubtless come later. Meanwhile the New Hope Dam project, which would require years for completion, can move along. A veteran soil conservationist, whose knowledge, judgment, and experience we rate highly, declared some time ago that the two plans should be merged. The Army Engineers take over at a certain point, generally somewhere around the fall line, of a river basin development, he explained, and the Soil Conservation's small dams apply to the smaller streams and tributaries in the basin's upper reaches. There should be cooperation rather than division and controversy which delay or block not one program but both.

Senator Jordan's suggestion makes sense. So, let's on with it.

[From the High Point Enterprise, Mar. 15, 1963]

NEW HOPE DAM SHAPES AS OPPOSITION FADES

A compromise plan by which House Agriculture Committee Chairman Harold D. Cooley proposed to proceed with the Randleman and Howards Mill Dams in the Cape Fear flood control project while holding in abeyance the New Hope Dam to see if it is needed is either a delaying or a facesaving device.

For the New Hope Dam is vital to the project.

Congressman Cooley knows that, which may account for his seeking a way out of the indefensible position he got himself into by blocking last year undertaking of a water conservation, flood control, and area recreational development too important for the Piedmont and the Cape Fear Basin generally to be denied.

A powerful case for the New Hope Dam project was made by witnesses at yesterday's hearing. Governor Sanford headed a delegation of some interested North Carolinians who went to Washington in a determined effort to break the logjam which has tied up too long that needed improvement which Army Engineers have backed strongly only to be thwarted by Congressman Cooley's opposition.

When the Soil Conservation Service, which had been represented as preferring a series of small reservoirs to the big one at New Hope, made clear it did not oppose the dam, Cooley's case collapsed under him. His proposal of a meeting of the Soil Conservation technicians and Army Engineers in an effort to effect a compromise was snapped up promptly.

It well could be that Congressmen Cooley recognizes the futility of further battling a project so vital to present and future welfare of a State which must look to that basin for water supply and which needs get about clearing stream pollution that must make it a body of usable water and not a cesspool.

Apparent collapse of opposition should serve to get that reclamation project on its way after too much delay already.

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[From the Raleigh News and Observer, Mar. 16, 1963]

COOLEY'S CESSPOOL

Harold Cooley has, of course, every right to make his one man campaign against the construction of the big New Hope Dam for development of the Cape Fear River Basin which is supported by Governor Sanford, other Congressmen and many interested citizens. But this continuing talk by Cooley to the effect that a big dam would create a cesspool is nonsense which does no credit to Cooley's intelligence and amounts to an attack by him on the intelligence of others.

Every sensible person knows that the Governor, both U.S. Senators and the North Carolina Congressmen supporting the project are not working to create "a gigantic cesspool," the water of which could not be used by man or fish. Certainly it is a reflection on the Corps of Engineers, which has designed many similar projects, to suggest that what they propose is a cesspool. And now the Soil Conservation Service, whose multiple small dam idea Cooley has favored, says it is not opposed to the New Hope Dam project.

Harold Cooley is practically left alone with his imaginary cesspool. It's about time he jumped in it so far as this project is concerned.

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[From the Raleigh News and Observer, Mar. 28, 1963]

SHRILLY RISING QUESTION

It is becoming increasingly difficult to understand the violence of Congressman Harold Cooley with regard to the proposed New Hope Dam. And his views about it seems less and less important as his voice grows more and more shrill in opposition which seems to express an almost personal frenzy.

Both North Carolina Senators and other North Carolina Congressmen interested in this matter favor this development. It has been recommended by the U.S. Corps of Engineers. The Soil Conservation Service, which offered an



alternate design of many small dams which Cooley favors, now says that it does not oppose the plan of the Engineers. And this expression goes pretty far for the Soil Conservation Service which must go before Cooley's House Agricultural Committee for its appropriations.

Those citizens who recently appeared at a hearing in Washington on the question predominantly favored the New Hope Dam. There is increasing realization that not only is the dam needed for Cape Fear River control but to provide water which will be essential to the development of such growing communities as Raleigh, Durham, Chapel Hill, the Research Triangle.

Yet Cooley has let loose another intemperate blast describing the New Hope Dam as "probably the biggest, boondoggle the House and Senate Public Works Committees ever had to consider, benefiting the fewest people for the money expended." This comes on top of his recent statement that the Army Engineer plan would create nothing but a cesspool unfit for fish or men.

Moderately expressed views by Harold Cooley would be received with respect by many North Carolinians. Also they know that Cooley has great power due to his seniority and position in the Congress. His almost one-man hue and cry might kill any needed water development in this area. And that could seriously delay many phases of growth in this area.

Increasingly, as the Congressman grows more and more frantic in opposition he raises the choice between Cooley or development. Mr. Cooley is a valuable man to North Carolina in the Congress. And this dam is a more and more evident essential to North Carolina's progress. It would be unfortunate if the Congressman lifted this matter to a choice between Cooley and the construction.

Many might prefer the high dam to the strident Congressman.

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[From the Winston-Salem Sentinel, Mar. 14, 1963]

FLOODS AVERTED—YADKIN TOWNS SAVED BY KERR SCOTT DAM

(By Gene Whitman)

The new Kerr Scott Dam, in its first test yesterday, saved the North Wilkesboro-Elkin section of the Yadkin River Valley from what might have been disastrous floods.

It also saved the North Wilkesboro water supply—an extra benefit which was anticipated when the $8 million flood control dam went into operation 3 miles north of Wilkesboro last year.

North Wilkesboro gets water from the Reddies River, a tributary of the Yadkin. Debris from floods clogged the screens and, at 8 a.m. Tuesday, waterworks engineers discovered the pumps had shut down.

With the town's 1,500,000 gallons of reserve water dwindling rapidly, industries were asked to cut consumption, but no general alarm was broadcast. The giant Holly Farms Poultry Industries, largest chicken processors in the world, shut down for one shift.

At 9 a.m., the alerted U.S. Corps of Engineers began closing the huge gates at Kerr Scott Dam. By noon, the flow in the Yadkin River below the dam had been completely shut off.

RIVER DRAINS

The Reddies River, permitted to drain at a speed never before possible, quickly subsided enough for waterworks engineers to clear the screens and restore operations. By early Wednesday, the plant was producing its normal 120,000 gallons an hour.

The gates at the dam remained closed until 6 a.m. Wednesday. Then they were opened to restore a normal riverflow. They were open 6½ feet to permitting the reservoir level to drop slowly, as floods subsided.

At the height of the test, the flood waters impounded in the reservoir pushed the water level up 15.7 feet.

This was only a small part of what the dam can do. The water level in reservoir can rise 45 feet before water begins flowing over the spillway, cut in the solid rock of a mountaintop.

During the floods this week, the river level at North Wilkesboro below the dam was held just below flood stage. U.S. Engineers estimated that, without the dam, flooding certainly would have occurred in the Wilkesboro-Elkins section of the Yadkin Valley.

WAKE COUNTY YOUNG DEMOCRATIC CLUB,
*Raleigh, N.C., March 27, 1963.*

Senator B. EVERETT JORDAN,
*Senate Office Building,*
*Washington, D.C.*

DEAR SENATOR JORDAN: Enclosed is a copy of a resolution unanimously adopted by the Wake County Young Democratic Club.

I trust that you will give it due consideration.

With kindest regards, I am,

Sincerely yours,

EDWARD E. HOLLOWELL, *Secretary.*

RESOLUTION OF WAKE COUNTY YOUNG DEMOCRATIC CLUB, MARCH 21, 1963

Whereas the Corps of Army Engineers have proposed to control floods and conserve the water resources of the Cape Fear River Basin by building a series of large dams in the upper reaches of the Cape Fear River; and

Whereas the proposed dam which would be of most benefit to Wake County would be known as the New Hope Dam; and

Whereas the water contained by the New Hope Dam would be of unlimited value to the citizens of Wake County and to the municipalities containing a large number of these citizens in the search carried on by those municipalities for new industry; and

Whereas the industrial growth so vitally needed to give employment to the unemployed in Wake County will be linked directly to the water resources available to new industry, and to water-based recreation; and

Whereas the Research Triangle area which now appears as a vital segment of the economic growth of Wake County is already experiencing water difficulties; and

Whereas the rapid growth of the Research Triangle area would be greatly enhanced by the construction of the New Hope Dam and by the waters contained therein: Now, therefore, be it

*Resolved*, That the Young Democratic Club of Wake County go on record as of this date endorsing to the fullest the plans approved by the Corps of Army Engineers for the development of the Cape Fear River Basin and the construction of the New Hope Dam; and be it further

*Resolved*, That a copy of this resolution be sent to the U.S. Senators from North Carolina and to Congressman Harold D. Cooley.

Done at a meeting of the Wake County Young Democratic Club in Raleigh this 21st day of March 1963.

GEORGE M. STEPHENS, JR.,
*President of Wake County Young Democratic Club.*

Attest:

EDWARD E. HOLLOWELL,
*Secretary of Wake County Young Democratic Club.*

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