

LEGISLATIVE RESEARCH COMMISSION

HAW RIVER AND JORDAN RESERVOIR WATER QUALITY



**REPORT TO THE
1983 GENERAL ASSEMBLY
OF NORTH CAROLINA
1984 SESSION**

LEGISLATIVE RESEARCH COMMISSION

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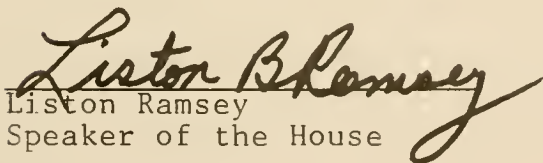
7 June 1984

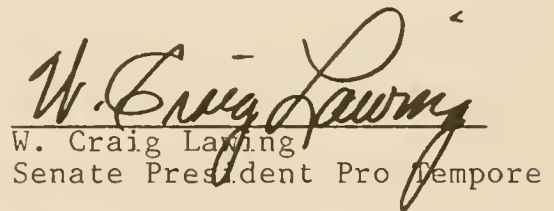
TO THE MEMBERS OF THE 1983 GENERAL ASSEMBLY:

The Legislative Research Commission herewith reports to the 1983 General Assembly, Second Regular Session 1984, on the matter of Water Quality in the Haw River and Jordan Reservoir. This report is made under the authority of G.S. 120-30.17(1) and pursuant to Section 16 of 1983 Session Laws Chapter 905 (HB1142).

This report was prepared by the Legislative Research Commission Committee on Water Quality in the Haw River and Jordan Reservoir; and the report and recommendations are approved and transmitted by the Legislative Research Commission to the members of the 1983 General Assembly for this consideration.

Respectfully submitted,


Liston Ramsey
Speaker of the House


W. Craig Lanning
Senate President Pro Tempore

Cochairmen

LEGISLATIVE RESEARCH COMMISSION

PREFACE

The Legislative Research Commission, authorized by Article 6B of Chapter 120 of the General Statutes, is a general purpose study group. The Commission is cochaired by the Speaker of the House and the President Pro Tempore of the Senate and has ten additional members, five appointed from each house of the General Assembly. Among the Commission's duties is that of making or causing to be made, upon the direction of the General Assembly, "such studies of and investigation into governmental agencies and institutions and matters of public policy as will aid the General Assembly in performing its duties in the most effective manner" (G.S. 120-30.17(1)).

At the direction of the 1981 General Assembly, the Legislative Research Commission has undertaken studies of numerous subjects. These studies were grouped into broad categories and each member of the Commission was given the responsibility for one category of study. The cochairmen of the Legislative Research Commission, under the authority of General Statutes 120-30.10(b) and (c), appointed committees consisting of members of the General Assembly and the public to conduct the studies. Cochairmen, one from each house of the General Assembly, were designated for each committee.

The study of Water Quality in the Haw River and Jordan Reservoir was authorized by the Omnibus Studies Bill, Chapter 905, Session Laws of 1983, with reference to H 1257, the bill originally proposing such a study.

The Legislative Research Commission grouped this study in its environment area under the direction of Representative Bruce Ethridge. The cochairmen of the Study Committee established by the Research Commission are Senator Russell Walker and Representative Joe Hackney. The full membership of the Committee is listed in Appendix A of this report. Chapter 905 authorizes this study and House Bill 1257, which the Committee was authorized to consider in determining the scope of the study, are also attached in Appendix A.

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BACKGROUND

A. Geography

1. Haw River

Draining over 1695 square miles, the Haw River is a major Piedmont North Carolina river system tributary both to Jordan Lake and the Cape Fear River. Its watershed includes large parts of Alamance, Chatham, Guilford, and Rockingham Counties and lesser amounts of Caswell, Forsyth, Orange and Randolph Counties. These areas are among the most urbanized in the State and contain such major metropolitan centers as Greensboro, Burlington, Graham, Chapel Hill, and Durham. (See Appendix B for watershed map). At least one municipality (Pittsboro) has chosen to derive its drinking water from the Haw. Many others discharge their wastewater after treatment into the river from what are known as "point sources"--i.e., discrete and identifiable discharges. "Non-point sources"--non-discrete and often harder-to-identify discharges, like direct run-off from the land--also contribute to pollution concerns about the Haw.

2. Jordan Lake

Located south of Durham and Chapel Hill and west from Raleigh, Jordan Lake has been embroiled in controversy almost since its inception. Conceived as flood control for downstream communities and touted for its recreational benefits, the Lake was built by the Corps of Engineers and completed recently. Although the Department of Natural Resources and Community Development (NRCD) gave it a qualified A-II water quality designation, suitable for drinking, it de-

layed actual water withdrawal authority because of concern over its immediate suitability for that purpose. As mentioned above, the Haw is a major tributary to the Lake. Therefore, those pollution problems which the Haw is experiencing are, quite literally, carried forward into the Lake. (See Appendix B for Jordan Lake watershed map).

B. Legal Framework

The legal framework for water pollution control is very complicated and yet at the same time far from comprehensive.

At Common Law navigable waters were said to constitute a public way and title to lands under them were vested in the State. 13 N.C. Index 3d, Waters and Watercourses, Section 6 (1978). Proprietors along rivers enjoyed "riparian rights"--another concept derived from England and predominant in the Eastern United States--whereby the owner might make reasonable use of the waters so long as he did not materially diminish the rights of others to water from the same river. Id at Sec. 3.

This "common resource" situation can create what economists call "third party effects" or "external diseconomies." These are defined as the harmful side-effects on others that result from someone's activities or production. For example, belching smokestack into the air or an open sewer into a river are classic instances where "common resources" - water and air - are burdened by human activities. The difficulties of determining liability, the high transaction costs involved in individual court actions, and the problems in measuring degree of harm or damages have furnished the traditional rationale for government exercise of its police

power to mitigate these harmful effects.

Especially over the past twenty years, the Federal government has enacted numerous laws to control water pollution, notably the Clean Water Act and the Safe Drinking Water Act. States, such as North Carolina, have followed suit, passing laws to implement federal goals and to make environment policy choices of their own. By and large, these laws have tended to be directed toward the discrete and identifiable sources of pollutions--"point sources"--and have not fully addressed pollution from non-point sources. While this is perhaps understandable in light of the higher knowledge and transaction costs involved in a sort of "micro-control" of pollution, it leaves a considerable part of the problem unaddressed. Furthermore, while earlier laws focused on conventional pollutants, such as wastewater discharges, new concerns have emerged, especially as to toxic chemicals and nutrient enrichment. Perhaps lagging furthest behind--but with some notable exceptions--have been the local governments. Their police powers are primarily zoning and land use ordinances. Nevertheless, there are new signs of willingness to consider environmentally motivated land use planning to protect sensitive watersheds.

Finally, there is the administrative bifurcation of water pollution control responsibilities within State government. The Department of Human Resources (DHR) has overall responsibility for public health matters, for groundwater, and for determination of the optional sources of drinking water, while NRCD has responsibility for the surface waters. Obviously, the subject matter of these responsibilities--public health

and pollution of the surface waters--overlaps.

For an outline of the legal framework, with citations to particular laws, consult the outline in Appendix B.

B. Major Issues

The survey of Committee proceedings will provide more detail, and the interested reader should consult the Committee minutes and tapes. Briefly, the main issues raised in Committee were the following.

1. Toxic chemicals. This is a catch-all for chemicals which present a danger to human health and well-being, either through immediate cellular changes or damaging DNA molecules. There is no single list of toxic chemicals but different lists for different purposes. For instance, for the purpose of prohibiting the dumping of toxic substances, GS 14-284.2 defines those substances by name as mercury, plutonium, selenium, thallium, uranium, PCB's, and kepone. EPA lists approximately 65 "priority chemicals" and over 120 "priority pollutants." (See Appendix B) One measure of the dimensions of the toxics situation is the explosion in the creation of new chemical compounds. While in 1940, only a billion pounds of organic chemicals were produced, by 1976 that figure had risen to 300 billion. The EPA estimates that over 33,000 chemical compounds are now in common use, and about 700 new chemicals enter the marketplace each year. Sometimes harmful compounds--such as trihalomethanes--occur in the process of trying to clean up the water. In that case, trihalomethanes are formed through an interaction of organics in the water with chlorine used to make water fit to drink.

2. Nutrients. These consist of natural and synthetic organic compounds (especially including phosphorus) which, when discharged into the water, promote the growth of various forms of algae, often in large quantities. Much of the nutrient overloading comes from wastewater discharges with phosphates, but a large amount comes from agricultural runoff.

3. Sedimentation. Related to nutrient overloading, sedimentation consists of soil, its constituents and additives, washed into waterways. Careless construction or wasteful agricultural practices fill the waterways with silt and pesticides residues and organic chemicals, including phosphorus, mix with the water.

COMMITTEE PROCEEDINGS

A. December 2, 1983

In this meeting the Committee met jointly with the other water quality study committees--Water Pollution Control and Water Resources: Virginia and North Carolina--to hear representatives from NRCDC discuss water quality problems and the approaches the Department was taking to solve them. The discussions were general in scope and included matters extraneous to the Haw and Jordan. Relevant summary is given here.

1. Sedimentation Control. Mr. Maurice Cook, Director of NRCDC's Division of Soil and Water, noted the problem of agricultural runoff contributing to the excess of sediment, nutrients, (including phosphates) and toxics into streams. At the same time, high inputs of pesticides and fertilizers are necessary to maintain high crop production. Among its approaches, NRCDC is emphasizing "Best Management Practices" for farmers to reduce the erosion of these

substances into the waterways. A copy of his remarks is in Appendix C. Mr. Steve Conrad, NRCDD's Director of Land Resources, spoke about the Sedimentation Pollution Control Act of 1973. Currently, thirty-five cities and counties administer local programs, but the Act itself covers only erosion resulting from construction activities, while agriculture (accounting for 65% of total sediment) and forestry are exempt. If sedimentation continues at historical rates, sediment will occupy 35% of Jordan Reservoir at some future time. Dredging costs would be over \$2 billion.

2. Toxics and Nutrients. Mr. Lee Fleming, Director of NRCDD's Water Quality Section, spoke directly of the Haw. Noting its flow through urbanized areas, Mr. Fleming stated that under low flow conditions, an extremely large percentage of the river's flow is wastewater. Under average flow conditions, the wastewater flow declines to a still significant 15%. Along the basin there are seven municipalities required to develop pretreatment programs, affecting 15 municipal point source discharges. NRCDD has also detected several toxic discharges. Altogether, the Haw contributes roughly 80% of the nutrients which enter Jordan Lake. A breakdown indicates that about half of these come from point sources, the other half from non-point sources. Since this area is becoming increasingly urbanized and new industries, especially high-tech and high-chemical, continue to move in, the State should develop an adequate program to maintain water quality and, with it, the quality of life in east central North Carolina. A reader interested in the comprehensive account of the meeting should consult the minutes. A copy of NRCDD's briefing paper is on file in the Committee minutes.

B. January 13, 1984

This meeting elaborated the major themes - toxics and sedimentation - developed in the previous meeting. The morning segment was devoted to hearing from various scientists, professionals, and environmentalists in the area, while in the afternoon the Committee joined the Water Pollution Control Committee to hear more from NRCD on its toxics program and the Pollution Prevention Pays Program. Lists of speakers and guests appear in Appendix C.

Dr. Richard Maas, an environmental chemist with N.C. State University, pointed to the data showing a distinct and significant toxics problem in the Haw. While many of these chemicals can be identified through time-consuming and costly analytical techniques, it would be far easier to identify them if some comprehensive discharge listing were available. Enforcement problems are complicated by the fact that industries tend to discharge intermittently.

Dr. Daniel Okun of the UNC School of Public Health spoke to the toxics question. While North Carolina has many water resources and her problems are not as severe as some other states, the State should emphasize a program of watershed protection and should take a more active role in identifying the best pollution-free sources for drinking water. Mr. Ed Holland, Director of Resource Conservation of Triangle J Council of Governments (representing 6 counties and 28 municipalities), seconded the thrust of Dr. Okun's points. He supported more research into toxics, a revision of drinking water standards to address the long-term health effects of chemicals, an improved water classification system. A copy of his remarks appears in Appendix C.

Dr. David Moreau, Director of the Water Resources Research Institute at UNC, noted the large number of point sources discharging municipal and industrial waste into the Haw. He also mentioned the nutrient enrichment problems of the Haw, and endorsed various measures, such as Best Management Practices in agriculture and more generous funding of wastewater treatment, to cope with these problems.

Other speakers, including Tom Glendinning of the Haw River Assembly and Bill Holman of the Conservation Council and Sierra Club, also appeared.

FINDINGS AND RECOMMENDATIONS

Having listened to numerous speakers and considered many pertinent materials, the Committee makes the following findings and recommendations:

1. The problem of nutrient loading, especially phosphates, is serious and growing. The presence of these nutrients, especially phosphates, has led to excessive algal growth (eutrophication) and degraded water quality. Due to its physical characteristics and the high wastewater content of tributaries, the Jordan Lake has been especially vulnerable to this problem. Other rivers, lakes and streams statewide have experienced this problem also. The Committee finds that wastewater treatment plant effluents are a significant source of phosphorus--42% of the relative phosphorus contribution in the Neuse River, 42% in Falls Lake, and 60% in Jordan Lake. While such phosphorus is removable at the treatment plant, costs to do so at this late stage are substantial. By contrast, a Clean Detergent Bill would (a) substantially reduce phosphate levels at (b) a cheaper relative cost, while (c) heightening environmental awareness in the public-at-large with (d) no significant diminution of laundering capability.

Recommendation: The General Assembly should pass a Clean Detergent Act as set out in Appendix D.

2. The NRCD has been conducting aggressive and innovative research programs in water quality management. In particular, NRCD has conducted research and programs in nutrient sensitive waters, toxic chemicals (including biocides) and has backed the Pollution Prevention Pays Program. But NRCD's enforcement efforts have been underfunded and largely ineffective. The General Assembly has the responsibility to see that deserving research and monitoring programs are adequately and appropriately funded and that enforcement programs become more effective.

Recommendation: The General Assembly should support NRCD's water quality related appropriations requests as set out in Appendix E.

3. The current criminal anti-dumping statute for toxic substances is inadequate. That statute, G.S. 14-284.2, lists only seven substances. Advances in our understanding of the nature and effects of toxic chemicals require that we upgrade this statute, and take the opportunity to clear up statutory anomalies.

Recommendation: The General Assembly should pass an addition to G.S. 14-284.2 based upon the Environmental Protection Agency's list of 65 priority chemicals and as set out in Appendix F.

4. The current tie-in of North Carolina water quality standards to federal standards, providing that our standards can be no stricter than the federal, inhibits regulatory flexibility and is no longer functional. G.S. 143-215(c) was passed at a time when the federal EPA was well funded and viewed as an environmental "cutting edge" with superior knowledge and expertise in designing appropriate environmental strategies. Since that time, this State has developed a superior program among the states and is fully qualified to make basic decisions as to standards itself.

The particular conditions of North Carolina require local decision-making as to appropriate water quality effluent standards and management practices.

Recommendations: The General Assembly should repeal G.S. 143-215(c) as set out in Appendix G.

5. The water quality problems of the Haw River and Jordan Reservoir are complex. The Committee heard from many speakers, including scientists who are experts in the water quality field, and learned that the water quality problems of these waters are complex and interrelated. Acceptable solutions extend beyond some inexpensive "techno-fix" but require a far reaching assessment of economic, social and legal strategies to provide coherence to any meaningful discussion. A comprehensive approach, embodying efforts at all levels of government and cooperation and incentives for the private sector, is highly desirable.

Recommendation: The General Assembly should continue this study and appropriate to it the funds necessary to accomplish its statutory purposes, as set out in Appendix H.

APPENDICES

APPENDIX A

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 1983
RATIFIED BILL

CHAPTER 905
HOUSE BILL 1142

AN ACT AUTHORIZING STUDIES BY THE LEGISLATIVE RESEARCH COMMISSION
AND BY THE COMMISSION ON CHILDREN WITH SPECIAL NEEDS AND MAKING
TECHNICAL AMENDMENTS RELATING THERETO.

The General Assembly of North Carolina enacts:

Section 1. The Legislative Research Commission may study the topics listed below. Listed with each topic is the 1983 bill or resolution that originally proposed the study and the name of the sponsor. The Commission may consider the original bill or resolution in determining the nature, scope and aspects of the study. The topics are:

- (1) Continuation of the Study of Revenue Laws (H.J.R. 16 - Lilley); and the ramifications, if enacted, of H.B. 746, Appraisal of Subdivided Tract (Auman) and H.B. 1250, No Intangible Tax/Income Surtax (Auman),
- (2) Continuation of the Study on the Problems of the Aging (H.J.R. 44 - Economos; S.J.R. 16 - Gray),
- (3) Continuation of the Study on Insurance Regulation (H.B. 63 - Seymour) and Insurance Laws and Regulation of Insurance Industry (H.B. 1243 - Rightower),
- (4) Teaching of Computer Literacy in the Public Schools and Community Colleges (H.J.R. 191 - Berry) and the Continuation of Study of College Science Equipment (H.J.R. 898 - Enloe),
- (5) Adequacy of State Management of Large-Scale Land Clearing and Peat Mining (H.J.R. 220 - Evans),
- (6) Adequacy of Existing Water Pollution Control Programs to Improve and Protect Water Quality in the State (H.J.R. 232 - Evans),
- (7) Marketing of Seafood by Fishermen (H.J.R. 896 - Chapin),
- (8) Continuation of Study on the Economic Social and Legal Problems and Needs of Women (H.J.R. 904 - Easterling; S.J.R. 329 - Marvin),
- (9) Regulation of Nonpublic and Public Post-Secondary Educational Institutions (Joint Resolution 33 (H.J.R. 988 - Thomas)),
- (10) Readable Insurance Policies (H.B. 1069 - Ballance),
- (11) State Government Risk Management (H.J.R. 1083 - Seymour),
- (12) Biotechnology Development (H.B. 1122 - Etheridge, Bobby and H.J.R. 1282 - Etheridge, Bobby; S.J.R. 620 - Hancock),
- (13) Continuation of Study of the State's Interest in Railroad Property (H.B. 1142 - Hunt),
- (14) Restricting Driving by Minors (H.J.R. 1149 - J. Jordan),

- (15) Health Professionals (H.J.R. 1194 - Diamont),
- (16) Water Quality in Haw River and B. Everett Jordan Reservoir (H.J.R. 1257 - Hackney),
- (17) Regulation of Alcoholic Beverages on State Property (H.J.R. 1292 - Clark),
- (18) Disposition of Animals by Animal Shelters and Pounds (H.J.R. 1309 - Stamey),
- (19) Boards, Commissions, and Councils in the Executive Branch (H.J.R. 1321 - Hunt),
- (20) Feasibility of a Food Distribution Facility on Dix Farm Property in Raleigh (H.J.R. 1334 - James),
- (21) Implementation of Identification and Labelling of Toxic or Hazardous Substances as Proposed by House Bill 1339 (Payne),
- (22) Water Resources Issues Involving North Carolina and Virginia (H.J.R. 1404 - Church),
- (23) Investment Guidelines for Eleemosynary Institutions and Funds (H.J.R. 1423 - Musselwhite),
- (24) Child Support Collection Procedures (H.J.R. 1439 - Easterling; S.J.R. 675 - Woodard, W.),
- (25) Contamination of Unpackaged Foods (H.J.R. 1441 - Stamey),
- (26) Legislative Communications Confidentiality (H.R. 1461 - Miller),
- (27) Continuation of the Study of Information Processing Resources in State Government (S.J.R. 44 - Alford),
- (28) Regulation and Taxation of Banks, Savings and Loans and Credit Unions (S.J.R. 381 - Edwards of Caldwell),
- (29) District Attorney Standards (S.B. 496 - Hipps),
- (30) Cost of Providing Attorneys and Guardians Ad Litem to Indigents (S.J.R. 643 - Swain),
- (31) Public Health Facility Laws (S.J.R. 656 - Hancock), and Review of Certificate of Need Procedures (H.J.R. 1294 - Economos),
- (32) Life Care Arrangements (S.J.R. 657 - Hancock),
- (33) Worthless Checks (S.J.R. 661 - Thomas of Henderson),
- (34) State-owned Rental Housing as contained in Section 2 of this act,
- (35) User Fees at State-owned Facilities, as contained in Section 3 of this act,
- (36) Motorboat Titles and Liability Insurance, as contained in Section 4 of this act,
- (37) Motor Vehicle Inspection Program, as contained in Section 5 of this act,
- (38) Continuation of the Study of Day Care (H.J.R. 594 - Colton),
- (39) Continuation of the Study on Twelfth Grade (H.J.R. 753 - Mauney; S.J.R. 343 - Tally),
- (40) Procedure for Incorporating Municipalities (S.J.R. 445 - J. Edwards),
- (41) Solar Law (S.J.R. 670 - Walker),

- (42) Statutory Liens (S.J.R. 680 - Edwards of Caldwell),
- (43) In-service Training of Teachers in North Carolina History, the American Economic System, Free Enterprise Concepts, and Legal Topics (H.B. 1281 - Foster).

Sec. 2. State-owned Rental Housing. (a) The Legislative Research Commission is authorized to conduct a study of all State-owned rental housing during the 1983-84 fiscal year and to recommend a comprehensive statewide rental policy, to be administered by the Department of Administration, to the 1984 Session of the General Assembly. This study shall be conducted in consultation with the department that owns the housing. In conducting this study, the Commission shall first determine the amount of nonessential rental housing currently owned by the State using the following criteria: The geographic location of the State property on which the housing is located and its proximity to alternative privately owned housing; the amount of time that would be required for employees to arrive at the State property on which housing is now located in the event of an emergency; the amount of security necessary for State property that is now being provided by State employees living in State-owned rental housing; and any other benefits to the State for employees to occupy said housing: The Commission shall recommend the disposition of nonessential rental property by one of three means: sale of the housing and property on which it is located; sale of the housing unit only with the stipulation that the house be removed from State property; and conversion of the housing unit to an alternative use.

(b) It is the policy of the State of North Carolina that the State provide rental housing only in cases in which an essential State purpose is served. Nothing in these sections shall be construed to mean that State departments may not continue to divest themselves of nonessential rental housing during the course of the Legislative Research Commission study.

Sec. 3. User Fees. The Legislative Research Commission is authorized to study the potential for user charges and admission fees at State-owned cultural, recreational and historical facilities. The study may cover museums, historic sites, marine resource centers as well as other facilities. The Legislative Research Commission may make an interim report to the 1984 Regular Session of the 1983 General Assembly and may make a final report to the 1985 General Assembly.

Sec. 4. Motorboat Titles and Liability Insurance. The Legislative Research Commission of the General Assembly is authorized to study the issue of motorboat titles and liability insurance. The study may include start-up and administrative costs, potential revenues, phase-in plans, financial institution requirements, etc. The Commission may report to the 1984 Session.

Sec. 5. Motor Vehicle Inspection Program Study. The Legislative Research Commission may study the effectiveness of the motor vehicle inspection program required by Article 3A of Chapter 20 of the General Statutes. The study may consider, among other aspects, the impact on highway safety, cost

effectiveness of the program, and probable impact of eliminating part or all of the program.

Sec. 6. For each of the topics the Legislative Research Commission decides to study, the Commission may report its findings, together with any recommended legislation, to the 1984 Session of the General Assembly or to the 1985 General Assembly, or the Commission may make an interim report to the 1984 Session and a final report to the 1985 General Assembly.

Sec. 7. G.S. 120-30.17 is amended by adding two new subsections to read:

"(7) to obtain information and data from all State officers, agents, agencies and departments, while in discharge of its duty, pursuant to the provisions of G.S. 120-19 as if it were a committee of the General Assembly.

(8) to call witnesses and compel testimony relevant to any matter properly before the Commission or any of its committees. The provisions of G.S. 120-19.1 through G.S. 120-19.4 shall apply to the proceedings of the Commission and its committees as if each were a joint committee of the General Assembly. In addition to the other signatures required for the issuance of a subpoena under this subsection, the subpoena shall also be signed by the members of the Commission or of its committee who vote for the issuance of the subpoena."

Sec. 8. Section 1 of Chapter 1372, Session Laws of 1981, is amended by deleting "as authorized in Section 2 of Resolution 61, Session Laws of 1981".

Sec. 9. Section 1(3) of Chapter 1372, Session Laws of 1981, is amended by deleting "1983 Session", and inserting in lieu thereof "1983 and 1985 Sessions".

Sec. 10. G.S. 124-5 is amended by deleting "June 1, 1983", and inserting in lieu thereof "the date of convening of the 1985 Regular Session of the General Assembly".

Sec. 11. The last sentence of G.S. 124-5 is amended by deleting "11-month period", and inserting in lieu thereof "period ending on convening of the 1985 Regular Session."

Sec. 12. Deaf/Blind School Move--Commission on Children with Special Needs. (a) The Commission on Children with Special Needs, established by Article 12 of Chapter 120 of the General Statutes, may study the issue of transferring the State schools for the Deaf and the Governor Morehead School for the Blind to the jurisdiction of the State Board of Education.

(b) The Commission may make a final report to the Second Session of the 1983 General Assembly. (H.J.R. 246 - Fenner)

Sec. 13. Bills and Resolution References. The listing of the original bill or resolution in this act is for references purposes only and shall not be deemed to have incorporated by reference any of the substantive provisions contained in the original bill or resolution.

Sec. 14. This act is effective upon ratification.
In the General Assembly read three times and ratified,
this the 21st day of July, 1983.

JAMES C. GREEN

James C. Green
President of the Senate

LISTON B. RAMSEY

Liston B. Ramsey
Speaker of the House of Representatives

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 1983



HOUSE JOINT RESOLUTION Bill 1257

Sponsors: Representatives Hackney; Barnes, Cook, McDowell, Holt,
McAlister, Wicker, Miller.

Referred to: Rules and Operation of the House.

June 10, 1983

1 A JOINT RESOLUTION TO AUTHORIZE THE LEGISLATIVE RESEARCH
2 COMMISSION TO STUDY THE QUALITY OF THE WATER IN THE HAW RIVER
3 AND JORDAN RESERVOIR.

4 Whereas, the Haw River, which flows through or is formed
5 from tributaries in Forsyth, Rockingham, Guilford, Alamance,
6 Orange and Chatham Counties, is one of the most important and
7 beautiful resources in central North Carolina; and

8 Whereas, the Haw River joins to the Deep River to form
9 the Cape Fear River which supplies water and recreation for many
10 eastern North Carolina communities; and

11 Whereas, the Haw River has become polluted over the
12 years and remains badly polluted by industrial discharges,
13 municipal wastes, and many other point and non-point sources; and

14 Whereas, despite the declaration of public policy of the
15 State contained in G.S. 143-211, ("to achieve and to maintain for
16 the citizens of the State a total environment of superior
17 quality"), and despite the vesting of jurisdiction in the
18 Department of Natural Resources and Community Development to
19 prosecute violators of water classification standards, serious
20 problems in its water quality remain to be remedied; and

1 Whereas, the Haw River provides the sole supply of water
2 for consumption by the citizens of the Town of Pittsboro in
3 Chatham County; and

4 Whereas, the Haw River flows directly into the newly
5 constructed and filled Jordan Reservoir, which lies principally in
6 Chatham County; and

7 Whereas, the quality of water in the Haw River has a
8 direct and certain impact on the quality of water in the Jordan
9 Reservoir, and the quality of life in the entire region;

10 Now, therefore, be it resolved by the House of Representatives,
11 the Senate concurring:

12 Section 1. The Legislative Research Commission is
13 authorized to study the quality of water in the Haw River and the
14 Jordan Reservoir. The study shall include but not be limited to
15 specific plans for upgrading water quality standards from present
16 classifications; specific plans for eliminating the most
17 significant point sources of water pollution in the Haw River
18 basin; an aggressive plan of criminal and civil prosecution of
19 known violators of the discharge permits now in existence, or of
20 the upgraded water quality standards to be established in the
21 future; a review of municipal pretreatment requirements for
22 industrial wastes, for municipal and county sewage treatment
23 plants which discharge into the Haw River or one of its
24 tributaries, and plans for any necessary upgrading of those
25 standards.

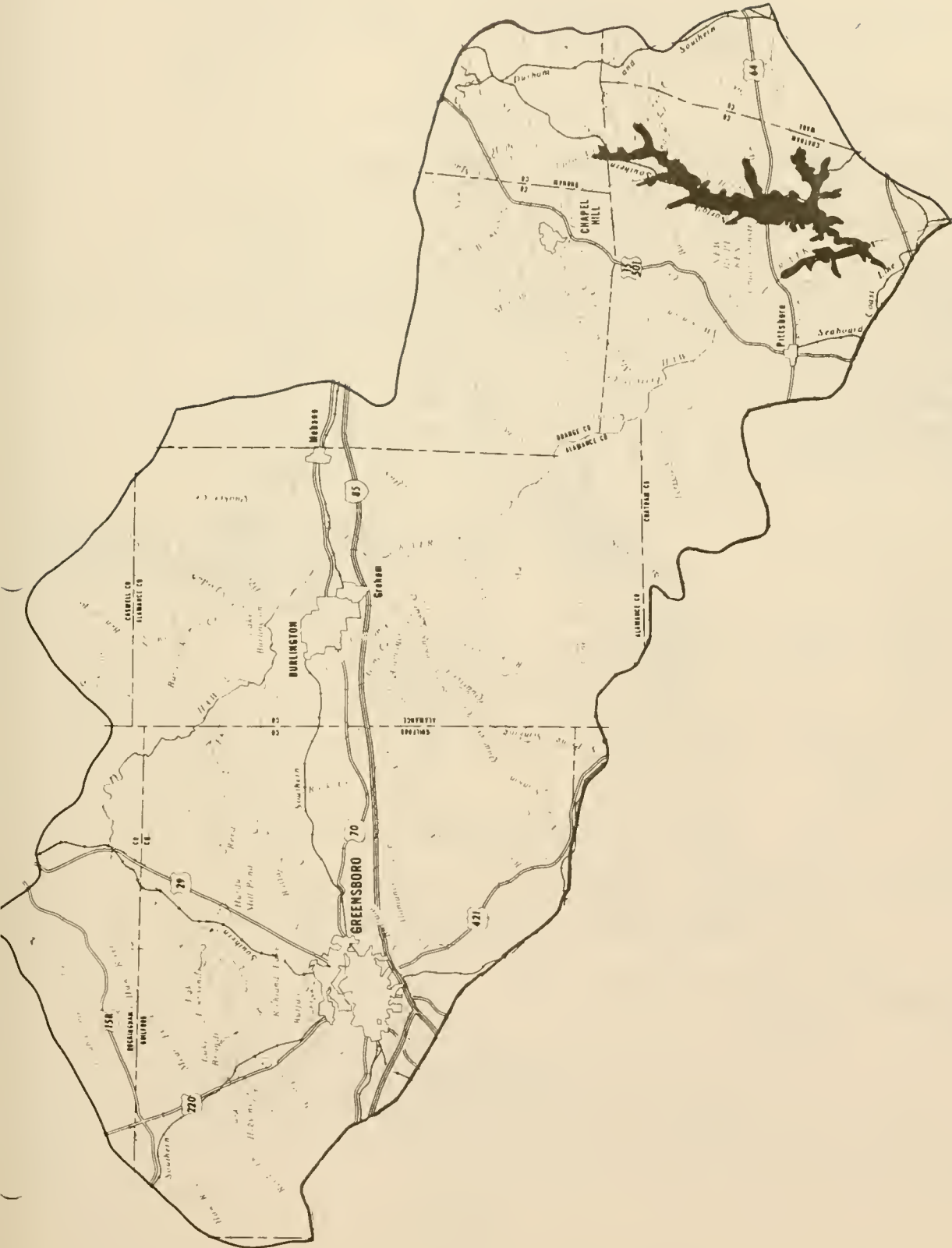
26 Sec. 2. The Commission is authorized to report its
27 findings and recommendations, together with legislation that
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1 would implement its recommendations, to the 1984 Session of the
2 1983 General Assembly or to the 1985 General Assembly; or the
3 Commission may make an interim report to the 1984 Session of the
4 1983 General Assembly and a final report to the 1985 General
5 Assembly.

6 Sec. 3. This resolution is effective upon ratification.
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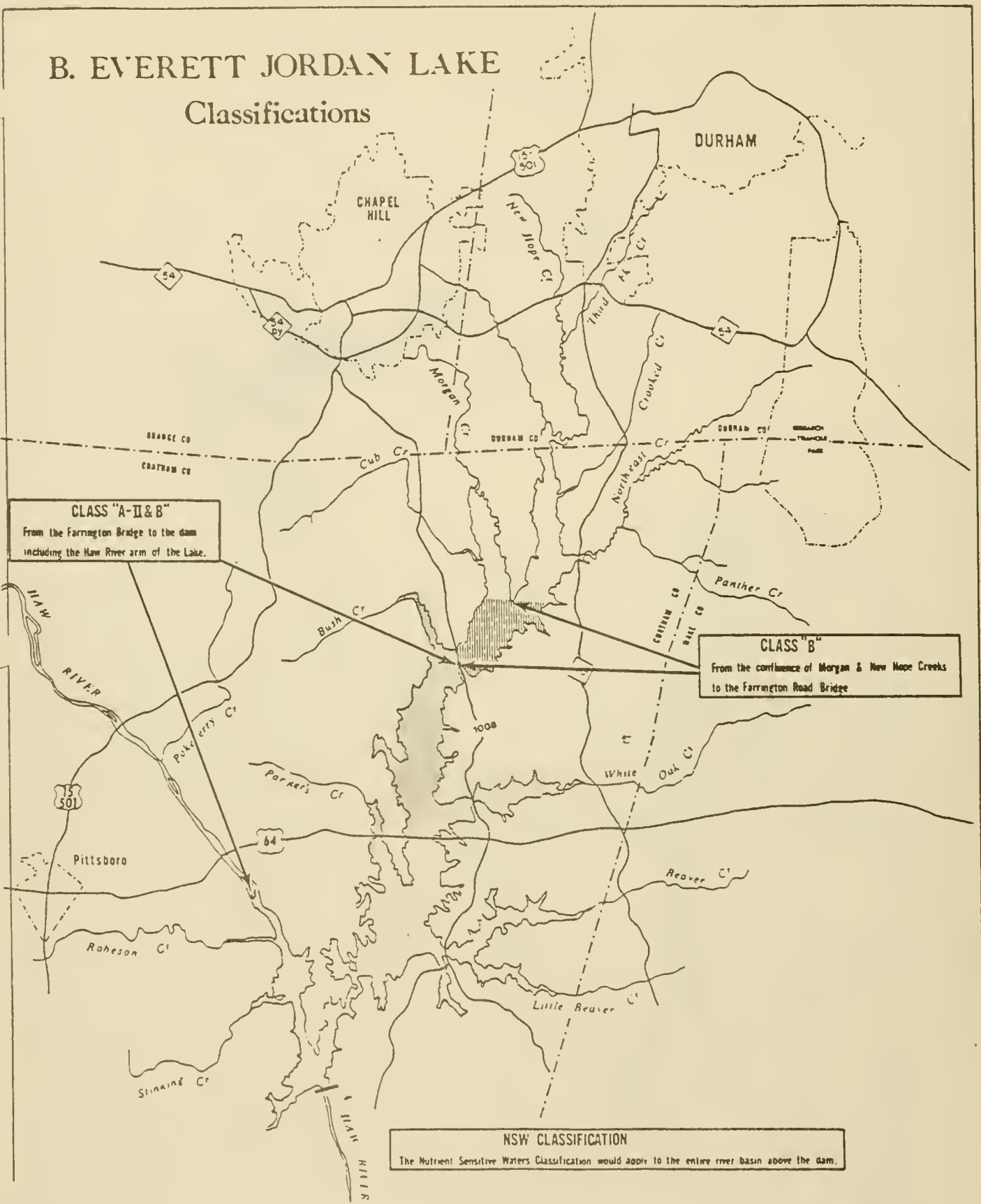
APPENDIX B

HAW RIVER BASIN



B. EVERETT JORDAN LAKE

Classifications



CLASS "A-II & B"
 From the Farrington Bridge to the dam
 including the Haw River arm of the Lake.

CLASS "B"
 From the confluence of Morgan & New Hope Creeks
 to the Farrington Road Bridge

NSW CLASSIFICATION
 The Nutrient Sensitive Waters Classification would apply to the entire river basin above the dam.

PRESENTATION - HAW RIVER

I. Issues

- A. Study authorized under C905 (H 1142, Sec. 1, Subsec. 16) referring to H1257. "The Commission may consider the original bill or resolution in determining the nature, scope, and aspects of the study."

1. Section 1 of H 1257 provides:

The Legislative Research Commission is authorized to study the quality of water in the Haw River and the Jordan Reservoir. The study shall include but not be limited to specific plans for upgrading water quality standards from present classifications; specific plans for eliminating the most significant point sources of water pollution in the Haw River basin; an aggressive plan of criminal and civil prosecution of known violators of the discharge permits now in existence, or of the upgraded water quality standards to be established in the future; a review of municipal pretreatment requirements for industrial wastes, for municipal and county sewage treatment plants which discharge into the Haw River or one of its tributaries, and plans for any necessary upgrading of those standards.

2. Major sources of pollution

- a. Municipal, industrial, agricultural
 b. Types
 (1) Organic wastes and other nutrients
 (2) Toxic chemicals and other hazardous substances
 (3) Heated water
 (4) Sediments

II. Legal framework of water issues

A. Federal

1. Clean Water Act - See summary in notebooks

- a. In 1972 Federal Water Pollution Control Act was amended substantially. In 1977, further amendments were made and the Clean Water Act of 1977 was born.
- b. Goals of Act:
 (1) Swimmable, fishable water wherever attainable by 1983
 (2) Elimination of discharge into navigable waters by 1985
- c. Programs under Act
 (1) Uniform, enforceable national standards and regulations to enforce
 (2) Nat'l. permit program for discharge from all point sources
 (a) EPA, under current decision, has redefined certain discharges as from sewers, feedlots, forestry, irrigation return flow as point sources subject to National Pollution Discharge Elimination System (NPDES)
 (b) Primary responsibility for nonpoint control falls on state which may delegate to local level
 (3) Federal funds for construction of sewage treatment plants

2. Safe Drinking Water Act (1974; am. 1977) See summary
 - a. Sets up national drinking water standards
 - b. EPA has primary responsibility for establishing national standards, but states are responsible for enforcing the standards and supervising public water supply systems and sources of drinking water. (See 130A-311 et seq., N.C. Drinking Water Act)
 - c. Main provisions
 - (1) "Public water system" defined as one that provides water for human consumption with at least 15 service connections
 - (2) Municipal and private water systems must monitor for compliance
 - (3) Provision for variance and exemptions because of "inability to comply"
 - (4) Standards set by EPA for maximum contaminant level. National Academy of Sciences is advising as to revision of these standards
 - (5) Groundwater protection attempted by Sec. 1442 setting out minimum requirement for state programs. See 130A-333 - Sanitary Sewage Systems
 - d. N.C. Drinking Water Act tracks federal provisions and implements them. This is under the Department of Human Resources.

B. State

1. Natural Resources and Community Development empowered to act as local administrator to federal programs and to receive federal funds 143-215(3)(c)
 - a. 143-211 - Water and Air Resources
 - (1) 143-214.1 sets out duties of EMC and water quality standards and qualifications
 - (a) (NSW) Nutrient Sensitive Water classification - may be involved when "excessive growths of microscopic or microscopic vegetation" is found which "impair the use of the water for its best usage." The quality standard applicable to NSW is "no increase in nutrients over background level."
 - (2) 143-215
 - (a) EMC authorized to adopt effluent standards and limitations and waste treatment management practices. "Effluent standards" mean restrictions on discharges from pretreatment facilities or from "any outlet or point source" 143-213(23). "Point Source" is a "discernible, confined, discrete conveyance." 143-(213)(24)
 - (b) Hardison amendment: "effluent standards and limitations and management practices adopted hereunder shall be no more restrictive than the most nearly applicable federal effluent standards and limitations and management practices (c)"
 - (3) 143-215.1 - Sets up permit system
 - (4) 143-215.6 - Sets up enforcement procedures in terms of civil penalties (a) and criminal (b)

- b. Other statutes
 - (1) 143-215.11 - Regulation of Use of Water Resources - Capacity use areas
 - (2) 143-215.23 - Dam Safety
 - (3) 143-215.75 - Oil Pollution and Hazardous Substances Control
 - (4) 133A-50 - Sedimentation Pollution Control Act
 - (a) Coverage exempts agricultural and forest uses as "land-disturbing activities" but includes residential, industrial, educational, institutional or commercial development and road-building. 133A-52(6)
 - (b) Sedimentation Control - Commission is authorized to assist local government in own ordinances (113A-54(d)(1) and must approve such programs (113A-60)
 - (c) Many counties and cities have not enacted such laws.
2. Department of Human Resources
- a. Drinking Water Act (130A-311)
 - (1) Track federal requirements
 - (2) DHR to examine waters (130A-316) and advise as to most appropriate source and best practical method of purification (130A-317). They are also to adopt rules governing sanitation of watersheds (130A-320).
 - b. Sanitary Sewage Systems (130A-333)
 - (1) Revision of responsibility: NRCD has jurisdiction of those that discharge to land surface or surface waters. All other to DHR
 - (2) Sets up scheme of permits in connection with local boards of health for septic systems.
3. Taxation
- a. 105-275(8)(a) allows exclusion from tax base of real or personal property used to "abate, reduce, or prevent" water and air pollution if EMC approves. Approval contingent that the primary rather than incidental purpose is reduction of water pollution resulting from sewage or waste discharge. (See also C. 643: Repeal and Restoration of Pre-1983 law)
 - b. 105-130.10 - 60 month amortization of waste treatment facilities for corporations
 - c. 159D-14 Tax exemption for property owned by N.C. Industrial Pollution Control Facilities Financing Authority or on interest on revenue bonds issued by same.
- C. Local Government - can do much to fill in the cracks, as for example, in sedimentation control. See Triangle J proposals
- 1. Cities and Towns
 - a. Police power delegation to regulate "acts, omissions or conditions detrimental to health, safety, or welfare (160A-174)

- b. Planning and Regulation of Development - 160A-360. Cities have extensive land use powers including subdivision regulation (160A-371), zoning (160A-381), provision for open space (160A-401)

2. Counties

- a. Police power delegation (153A-121)
- b. Planning - includes subdivisions (153A-330), zoning (153A-340)

One of the central legal questions involved in land use regulation is the "Taking Problem", arising from the 5th Amendment prohibition against taking private property, unless for public use, with just compensation. Generally, valid zoning regulations are not a taking. Euclid v. Ambler Realty, 272 US 365 (1926). Protection of a watershed, for example, would probably be a valid public purpose to justify exercise of the police power. The resolution of questions depends upon the particular facts" with "greatest weight...given to the judgement of the legislature." Penn. Coal Co. v Mahan, 260 US 393 (1922). Penn. Central Transp. Co. v N.Y., 438 US 104 (1978) suggests a 3 part test - (1) Is there a physical invasion? (2) Is the restriction reasonably related to implementing a policy producing widespread benefit and applicable to all similarly situated property? (3) Is the owner denied the possibility of earning a reasonable return on investment?

65 priority chemicals

Carcinogens, or suspected carcinogens

Acrylonitrile
Aldrin/Dieldrin
Arsenic
Asbestos

Benzene

Benzidine

Beryllium

Cadmium

Carbon

tetrachloride

Chlordane

Chlorinated ethanes

Chloroalkyl ethers
(BCIE, BCEE)

Chloroform

Chromium

DDT

Dichlorobenzadine

Dichloroethylenes

2,4-Dimethylphenol

Dinitrotoluene

Diphenylhydrazines

Halomethane

Heptachlor

Hexachloro-
butadiene

Hexachlorocyclo-
hexane (BHC)

Nitrosamines

Polychlorobi-
phenyls (PCB)

Polynuclear aromatics

Tetrachlorodibenzo-
p-dioxin

Tetrachloroethylene

Toxaphene

Trichloroethylene

Vinyl chloride

Toxins

Acenaphthene

Acrolein

Antimony

Chlorinated
naphthalenes

Chlorinated
phenols

2-Chlorophenol

Copper

Cyanide

Dichlorobenzene

2,4-Dichlorophenol

Dichloropropane

Endosulfan

Endrin

Ethylbenzene

Fluoranthene

Hexachlorocyclo-
pentadiene

Isophorone

Lead

Mercury

Naphthalene

Nickel

Nitrobenzene

Nitrophenol

Pentachlorophenol

Phenol

Phthalate esters

Selenium

Silver

Thallium

Toluene

Zinc

As a part of the Settlement Agreement between Natural Resources Defense Council and EPA, it was agreed that EPA would address the attached 129 Priority Pollutants (known and suspected toxic substances) in establishing new industrial categorical effluent guidelines for toxics. Also EPA revised the NPDES procedural regulations to require certain industrial groups (primary industries) to provide analyses and other information on an expanded list of the 129 priority pollutants when applying for NPDES permit renewal. The results of these reports are reviewed by the Division of Environmental Management during the permit renewal process to determine if effluent limitations and/or monitoring of any of these parameters should be included in the renewal permit. Through State regulations (15 NCAC 2B .0200) and water quality standards has general, as well as specific, DEM has authority for controlling toxic substances where the substance and its toxic effects can be demonstrated.

PRIORITY POLLUTANTS

1.	acenaphthene	66.	bis(2-ethylhexyl) phthalate
2.	acrolein	67.	butyl benzyl phthalate
3.	acrylonitrile	68.	di-n-butyl phthalate
4.	benzene	69.	di-n-octyl phthalate
5.	benzidine	70.	diethyl phthalate
6.	carbon tetrachloride	71.	dimethyl phthalate
7.	chlorobenzene	72.	benzo(a)anthracene (1,2-benzanthracene)
8.	1,2,4-trichlorobenzene	73.	benzo(a)pyrene (3,4-benzopyrene)
9.	hexachlorobenzene	74.	3,4-benzofluoranthene
10.	1,2-dichloroethane	75.	benzo(k)fluoranthene (1,12-benzofluoranthene)
11.	1,1,1-trichloroethane	76.	chrysene
12.	hexachloroethane	77.	acenaphthylene
13.	1,1-dichloroethane	78.	anthracene
14.	1,1,2-trichloroethane	79.	benzo(c)perylene (1,12-benzoperylene)
15.	1,1,2,2-tetrachloroethane	80.	fluorene
16.	chloroethane	81.	phenanthrene
17.	bis(chloromethyl) ether	82.	10peryleneanthracene (1,2,5,6-dibenzanthracene)
18.	bis(2-chloroethyl) ether	83.	indene (1,2,3-cdipyrene (2,3-o-pheyleneperylene)
19.	2-chloroethyl vinyl ether (mixed)	84.	pyrene
20.	2-chloronaphthalene	85.	tetrachloroethylene
21.	2,4,6-trichlorophenol	86.	toluene
22.	parachlorometacresol	87.	trichloroethylene
23.	chloroform (trichloromethane)	88.	vinyl chloride (chloroethylene)
24.	2-chlorophenol	89.	aldrin
25.	1,2-dichlorobenzene	90.	dieldrin
26.	1,3-dichlorobenzene	91.	chlordane (technical mixture & metabolites)
27.	1,4-dichlorobenzene	92.	4,4'-DDE
28.	3,3'-dichlorobenzidine	93.	4,4'-DDE (p,p'-DDE)
29.	1,1-dichloroethylene	94.	4,4'-DDE (p,p'-DDE)
30.	1,2-trans-dichloroethylene	95.	a-endosulfan-Apnaa
31.	2,4-dichlorophenol	96.	o-endosulfan-Beta
32.	1,2-dichloropropane	97.	endosulfan sulfate
33.	1,2-dichloropropylene (1,3-dichloropropene)	98.	enofin
34.	2,4-dimethylphenol	99.	enofin alginate
35.	2,4-dinitrotoluene	100.	heptachlor
36.	2,6-dinitrotoluene	101.	heptachlor epoxide
37.	1,2-diphenylhydrazine	102.	a-BHC-Arona
38.	ethylbenzene	103.	b-BHC-Beta
39.	fluoranthene	104.	r-BHC-(indane)-Gamma
40.	4-chlorophenyl phenyl ether	105.	g-BHC-Delta
41.	4-bromophenyl phenyl ether	106.	PCS-1242 (Arochlor 1242)
42.	bis(2-chloroisopropyl) ether	107.	PCS-1254 (Arochlor 1254)
43.	bis(2-chloroethoxy) methane	108.	PCS-1221 (Arochlor 1221)
44.	methylene chloride (dichloromethane)	109.	PCS-1232 (Arochlor 1232)
45.	methyl chloride (chloromethane)	110.	PCS-1248 (Arochlor 1248)
46.	methyl bromide (bromomethane)	111.	PCS-1260 (Arochlor 1260)
47.	bromoform (tribromomethane)	112.	PCS-1016 (Arochlor 1016)
48.	dichlorobromomethane	113.	toxaphene
49.	trichlorofluoromethane	114.	antimony (total)
50.	dichlorodifluoromethane	115.	arsenic (total)
51.	chlorodibromomethane	116.	asbestos (fibrous)
52.	hexachlorobutadiene	117.	beryllium (total)
53.	hexachlorocyclopentadiene	118.	caesium (total)
54.	isophorone	119.	chromium (total)
55.	naphthalene	120.	copper (total)
56.	nitrobenzene	121.	cyanide (total)
57.	nitrophenol	122.	lead (total)
58.	4-nitrophenol	123.	mercury (total)
59.	2,4-dinitrophenol	124.	nickel (total)
60.	4,6-dinitro-o-cresol	125.	selenium (total)
61.	N-nitrosodimethylamine	126.	silver (total)
62.	N-nitrosodiphenylamine	127.	thallium (total)
63.	N-nitrosodi-n-propylamine	128.	zinc (total)
64.	pentachlorophenol	129.	2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
65.	phenol		

APPENDIX C

SOIL AND WATER CONSERVATION

Maurice G. Cook, Director
Division of Soil & Water Conservation

Agriculture is North Carolina's largest industry. A large percentage of the land in the state is devoted to agriculturally related activities. Productive agriculture is dependent on our land and water resources. These resources are interdependent and must be managed properly in order for the state to maintain its strong position as a leader in agricultural production.

In North Carolina, relatively large inputs of nutrients and other chemicals, such as pesticides, are required to maintain high levels of crop production. When these materials are removed from the field through rainfall runoff, the farmer is losing valuable agricultural assets. At the same time, these assets may be delivered to the state's stream system and become pollutants. The entry of sediment, nutrients, pesticides, and animal wastes into streams impacts adversely on the general public use of these waters as well as reducing the supply of clean water.

One of the major detriments to our land resource is soil erosion, the movement of soil from one place to another by water and wind. Although erosion is a continual process, it is accelerated by activities such as farming, construction, mining, or any other activity which removes vegetative cover for a period of time. Gross erosion from all sources in North Carolina is nearly 80 million tons annually. Due to the large acreage of cropland, erosion from cropland accounts for 64% of this total. Over time, losses this great can have a dramatic effect on the productive potential of the land base.

A recent erosion study of the Upper Neuse River Basin shows that almost 600,000 tons of soil erodes annually on cropland in the Basin. If that current rate continues to the year 2000, 98% of the land will have suffered losses in production potential that cannot be recovered.

Sediment, the end product of erosion, is that portion of eroded soil which enters a water body. By volume, sediment is the largest pollutant of surface water in North Carolina. It is estimated that about 25% of eroded soil actually becomes sediment. When eroded soil reaches a water

- 2 -

body in the form of sediment, impacts on both the physical and biological character of the water body become evident. In addition, sediment can also transport phosphorus and pesticides which the farmer needs for production and which adversely affect water quality.

The nature of phosphorus pollution from cropland warrants some explanation due to the the chemistry of phosphorus in a soil system as contrasted with phosphorus in solution. When applied in a commercial fertilizer or manure to the soil, the phosphorus reacts quickly and tenaciously with the soil particles. Thus, the phosphorus remains in the top few centimeters of soil; there is very little vertical movement down into the soil. When the topsoil is eroded, phosphorus is one of the major elements carried away because it is attached firmly to the soil particles. Utilization of good soil conservation practice is the key to reducing the phosphorus contribution from agriculture. Therefore, we are placing emphasis on the implementation of Best Management Practices to reduce soil loss which consequently reduces phosphorus loss.

One of the best management practices to reduce soil erosion and, thus, water pollution is minimum tillage. Briefly, this is a practice that disturbs the soil a minimum amount. It is referred to as no-till farming in some circles. To encourage the use of minimum tillage by farmers, the Department supported the legislation introduced last year that provided a tax credit for the purchaser of conservation tillage equipment. This legislation is House Bill 541, which passed the House and is now in the Senate Finance Committee. Your support of this Bill is encouraged.

Other best management practices have been identified which conserve the resources needed by the farmer and reduce water pollutants from agricultural land. We encourage the use of BMP systems which combine several proven conservation and farm management techniques such as optimal fertilizer application, soil conservation, proper pesticide application, and improved animal waste management.

The success of BMP implementation by farmers is dependent on several factors. First and foremost, economic incentives are needed to help offset the cost of applying the more extensive structural practices. Adequate technical assistance is needed to help farmers identify and treat problems. A strong education program is needed to convince farmers of the benefits of applying BMP's.

I should add that forestry has similar concerns as agriculture. The Division of Forest Resources supports the voluntary approach to BMP implementation, economic incentives, and education. Their needs are for additional staff to provide support for their personnel in the field who, in turn, assist woodlot owners and managers.

The funds required to implement this program are included in the Nutrient-Sensitive Watershed Budget that Mr. Summers described. The farmers should receive positive benefits by cooperating in the program. Many of the BMP's such as soil testing and optimum fertilizer use, reduce farm operating costs and increase profits. Sound soil conservation practices which reduce erosion and result in lowered sediment inputs to streams and lakes, also save valuable topsoil increasing crop yield potentials. Not only are farmers utilizing BMP's helping to protect water quality, but they are also investing in the future success and vitality of farm resources.

However, implementation of BMP's is not only for the good of farmers and agriculture. It is for the public good. What better legacy could be left for future generations than productive land and adequate amounts of good, clean water.

C-4
VISITOR REGISTRATION SHEET

DATE: December 2, 1983

LRC - Committee to study Water Pollution Control (Joint Meeting)

NAME OF COMMITTEE

VISITORS: Please sign below and return to secretary.

NAME

FIRM OR STATE AGENCY AND ADDRESS

Paul Sewell	CITY OF EARLINGTON, P.O. BOX 1303, BURLINGTON
Gene Hill	NCCBI
SAM JOHNSON	Assy Box 1776 RALEIGH NC 27602
Lynn Blanchard	UNC School of Public Health, C.H.
Helen King	UNC School of Public Health, C.H.
Jim Hummer	NRCO
Bill Ross	NRCO
JOHN MORRIS	NRCO - Office of Water Resources
Mrs. Margaret U. Hopton	LWV - State Observer ^{Chapel Hill} Tel. 275
Walter Reed	Mayor of Raleigh, N.C.
Jed Ammons	Newse Comm - Raleigh, N.C.
Blaine W. ...	NRCO
William H. Sparrow	Newse Comm - Durham N.C.
Maureen's ...	NRCO
EARL G. DRESSLER	NRCO
Steve Conrad	NRCO - Land Resources
Jed Baggett	NC League of Women
Don Holman	Conservation Council / Sierra Club
Thomas K. BRUCE	City of Durham
TOM GLENDINNING	HAW RIVER ASSY - MEDICAL GEOGRAPHY COMM.
Susan Frost	Western Electric - Greensboro
Rick Honeycutt	Alamance County 124 W Elm St. Graham N.C.

VISITOR REGISTRATION SHEET

Name of Committee

Date

VISITORS: Please sign below and return to secretary.

NAME	REPRESENTING	ADDRESS
Arne Taylor	NRCO	Raleigh
Dave Moreau	Water Resources Research Inst.	Raleigh
Terry Sholar	NRCO	Washington, N.C.
Steve Todd	NRCO	Raleigh
Forest R. Westell	NRCO	Raleigh
Jean Goodman	Guilford County Commission	Greensboro
B. "Tex" Kirschman	NRCO	Raleigh
DAN McEVINIS	Forest Resources FOREST RESOURCES	Raleigh
Bob Helms	NRCO-DEM	Raleigh
LEE FLEMING	NRCO-DEM	RALEIGH
DAVID REYNOLDS	N.C. League of Municipalities	Raleigh
Ed Holland	Triangle J.C.O.G.	RTP
Estlie Kaplan	Guilford Co. Planning	Greensboro
John White Blanchard	UNC School of Pub Health	Chapel Hill
John Kumpak	UNC School of Pub Health	Chapel Hill
Rene Johnson	Johnson, Gamble & Sheorn, Attys.	Raleigh, N.C.
DONALD N. COX	Orange Co.	122 E. QUEEN ST. GREENSBORO
PERRY NELSON	DEM-GROUNDWATER SECTION	RALEIGH
Arthur Mouberry	NRCO/DEM Groundwater	Raleigh

VISITOR REGISTRATION SHEET

Name of Committee _____

Date _____

VISITORS: Please sign below and return to secretary.

NAME

REPRESENTING

ADDRESS

MARVIN RAGLE, City of Graham, P.O. Drawer 357
27253

HAW RIVER AND JORDAN RESERVOIR
WATER QUALITY STUDY COMMITTEE
Second Meeting
January 13, 1984

- I. Call to Order
- II. Review of Budget
- III. Review of 1983-84 Legislative Research Commission Rules
- IV. State and Federal Laws Bearing on Water Quality
Mr. Daniel Long, Committee Counsel
- V. Speakers
Mr. Rick Maas, NCSU Water Quality Evaluation Project
Mr. Daniel Okun, UNC School of Public Health
Mr. Ed Holland, Triangle J Council of Governments
Mr. Tom Glendinning, Haw River Assembly
Mr. David Moreau, OWASA
Mr. Bill Holman, N. C. Sierra Club, Conservation Council
- VI. Committee Discussion
- VII. Instructions to Staff
- VIII. Selection of Next Meeting Date
- IX. Adjournment *

* Afternoon session will be in Room 1425 for NRCD presentation on "Pollution Prevention Pays" and toxics.

TRIANGLE J COUNCIL OF GOVERNMENTS

100 PARK DRIVE P.O. BOX 12276 RESEARCH TRIANGLE PARK, N.C. 27709 (919) 549-0551

STATEMENT TO THE LEGISLATIVE STUDY COMMISSION ON HAW RIVER AND JORDAN LAKE WATER QUALITY

January 13, 1984

Edward A. Holland, Director of Resource Conservation
Triangle J Council of Governments

Good morning, Representative Hackney, Senator Walker, and members of the Commission. My name is Ed Holland. I'm on the staff of Triangle J Council of Governments.

As some of you may know, TJCOG is a regional planning agency, whose membership includes the 6 county and 28 municipal governments in Chatham, Durham, Johnston, Lee, Orange and Wake Counties.

- That area includes all of Jordan Lake, and about 10 miles of the Haw River, before it enters Jordan Lake.
- Water quality and water supply have been top priorities of our members for over 15 years.
- In 1974, Triangle J became the first agency in the U.S. to receive a water quality planning under Section 208 of the federal Clean Water Act.

APLEX	BENSON	BROADWAY	CARRBORO	CARY	CHAPEL HILL
CLAYTON	DURHAM	FOUR OAKS	FUQUAY-VARINA	GARNER	
GOLDSTON	HILLSBOROUGH	HOLLY SPRINGS	KENNY	KNIGHTDALE	
MICRO	MORRISVILLE	PINE LEVILL	PITTSBORO	PRINCETON	
RALPHIGH	ROLLSVILLE	SANFORD	SILMA	SILER CITY	
SMITHFIELD	WAKE FOREST	WENDILL		ZEBULON	
CHATHAM COUNTY	DURHAM COUNTY		JOHNSTON COUNTY		
LEE COUNTY	ORANGE COUNTY		WAKE COUNTY		



- 10 years later the picture is clear: water quality and water supply are increasingly important factors for the livability and marketability of this part of North Carolina.

I am pleased to share some of the specific concerns and interests of our organization. Although I'm speaking on behalf of the Triangle J, my comments do not represent - nor are they intended to represent - the views and positions of all our member governments. Any comments or opinions which reflect my own professional judgement, rather than Triangle J policy, will be identified.

Triangle J deals with water pollution under 3 general categories: toxic materials, nutrients, and sediment. We are concerned about the serious - and largely unanswered - questions about long-term health effects of toxic trace elements and synthetic organic chemicals which may be present in Jordan Lake. At the May meeting of the N.C. Environmental Management Commission, NRCO officials cited their lack of data on which to base conclusive statements about the presence or absence of these substances in Jordan Lake. At the September EMC meeting, evidence was presented suggesting the widespread occurrence of toxic biocides in the surface waters of North Carolina. At its October meeting, the EMC reclassified major segments of Jordan Lake as A-II, for protection as a public water supply. But the EMC also placed a moratorium on the actual use of the lake for drinking water until the many public health questions are answered.

Triangle J applauds that decision, and hopes the responsible agencies can carry out the EMC's bold mandate. There are several important needs:

- The Department of Natural Resources and Community Development must have additional manpower and equipment to measure these substances in the environment.
- Last month Joe Grimsley proposed a special budget request for NRCDD's Toxics Program. I would strongly support that request.
- As the information is gathered, State agencies must be willing to share it with our citizens and local governments immediately, and in a clear, understandable manner.
- Most of the recent action and innovation has been within NRCDD. But what about the Department of Human Resources, the agency which develops drinking water standards for protecting the public health? There is a special need for close cooperation among the different State agencies who share the rather fragmented responsibility for water supply and water quality in North Carolina.
- Triangle J is concerned about the adequacy of the State's system for classifying rivers and lakes. We are not convinced that the present system will really assure the long-term quality of Jordan Lake.

- The existing classification system does not prevent the gradual deterioration of A-II waters.

- All A-II waters are not of equal quality. The U.S. Army Corps of Engineers and the N.C. Environmental Management Commission have both acknowledged that Jordan Lake is of lesser quality than OWASA's Cane Creek site in Orange County - even though both sources may satisfy existing A-II standards as water supply sources.

- Runoff from new development and effluent from new wastewater plants in the Jordan watersheds will inevitably degrade these water supply sources, even though present A-II standards may be met.

- We need a new and better approach. We need a level of protection somewhere in between the existing A-I and A-II categories. We encourage the EMC to create a new "Enhanced Protection" designation for certain stream segments or sub-basins of large reservoirs.

- Cities and counties can and will take more aggressive steps against nonpoint pollution through local zoning ordinances, subdivision regulations, and utility extension policies. However, the EMC must work cooperatively with local governments, and not subvert these local efforts by issuing wastewater discharge permits in critical watersheds.

Triangle J has been deeply involved in NRCD's recent Falls and Jordan Lake initiatives for controlling two other important pollutants: phosphorus and sediment.

- We strongly support the EMC's designation of the Jordan Watershed as nutrient sensitive, and have been encouraging local governments to accept their share of the responsibility for reducing phosphorus loads from agricultural and urban runoff, and from municipal wastewater plants.
- In September, our agency endorsed a Strategy that became a major ^{falls} component of NRCD's State/Local Action Agenda for Protecting Jordan Lakes. One element of that Strategy addressed water pollution sources from new development in portions of the watersheds undergoing rapid growth. It proposed that land closest to the lakes be subject to higher levels of protection from stormwater runoff, malfunctioning wastewater systems, and toxic chemical spills. These were to be designated as Water Quality Critical Areas, but they have not yet been drawn on a map.
- Rather than specifying a density of houses per acre or minimum lot size, Triangle J's Executive Committee endorsed guidelines for maximum impervious coverage of 6% - roughly equivalent to the existing residential pattern of 1 1/2 to 5 acres per dwelling in Durham, Orange and Wake Counties. This low-intensity/low impervious development pattern would be further supported by local sewer extension policies that direct more intensive development away from the Water Quality Critical Areas.

There is still a lot of work to be done. Several specific proposals have been floated. Triangle J will continue to study alternative

policies and new development recommendations for reducing phosphorus inputs to Jordan Lake.

- The last major pollutant is sediment. Jordan Lake receives more than 300,000 tons of sediment each year - largely from cropland erosion. Just how much is 300,000 tons of sediment? It's enough to displace more than 150 million gallons of water supply storage in Jordan Lake each year.
- Joe Grimsley and Governor Hunt have proposed a Nutrient Sensitive Watershed budget request for reducing this critical erosion problem. I strongly encourage the Study Commission to support that proposal.
- Protecting and improving water quality of the Haw River/Jordan Lake system will require the dedicated and coordinated efforts of State and local agencies, private landowners, developers and the taxpayers of North Carolina.

A quick summary of my recommendations:

1. More data on toxic trace metals and synthetic organic chemicals that may be present in the Haw River/Jordan Lake system.
Timely and open sharing of that information with local governments.
2. New drinking water standards that address the long-term human health aspects of toxic materials.
 - o Better coordination of water resource activities of the Department of Human Resources and NRCD.

3. A more effective system for classifying and protecting rivers and lakes; especially a new "Enhanced Protection" designation for high quality stream segments or sub-basins of large reservoirs.
4. Strong support for recent NRCO budget initiatives: The Nutrient Sensitive Watershed Budget and The Toxics Budget.

Thank you very much.

Comments to the Legislative Study Commission
on the Haw River

by

David H. Moreau

Professor of Water Resource Planning
University of North Carolina at Chapel Hill

and

Director of the Water Resources Research Institute
of the University of North Carolina

Ladies and gentlemen of the Legislative Research Commission. Thank you for this opportunity to address the need for enhancing and protecting the quality of water in the Haw River. The Haw River is one of our states most valuable resources. It is a scenic resource of considerable historic value to the several counties through which it flows. It is probably the most heavily used recreational stream in North Carolina, for canoeing and whitewater rafting and for flat water recreation on Jordan Reservoir. The Haw River and its tributaries provide water supplies to several of the larger centers of urban population and industrial activity in the state, including Greensboro, Burlington, and Chapel Hill. In addition to its use as a source of municipal and industrial water supply, it serves an important function as means for disposing of wastewaters from these urban-industrial centers. It also has an unmeasured value as a natural system supporting a variety of ecological processes. As a valuable economic resource we cannot expect to maintain the Haw River as a wild and scenic river free of all contamination, but we must manage the quality of its waters so as to maintain the variety of values associated with its use.

There are three distinctly different types of contamination that threaten its use, and my remarks are organized to address these three types of pollution. They are: (1) a class of materials and biological organisms now referred to by the US Environmental Protection Agency as "conventional pollutants", including biodegradable organics that impose demands on the oxygen resources of streams, suspended solids, and pathogenic organisms; (2) phosphorous and nitrogen that promote the growth of algae and other aquatic plants; and (3) toxic substances, particularly synthetic organic chemicals that may be carcinogenic. My purpose here is to try to identify the barriers we face in solving each of these problems, and to suggest ways by which the General Assembly should respond to these problems.

Conventional Pollutants

Problems

Conventional pollutants are well understood. Their sources are well documented, their behavior in streams is predictable with a relatively high degree of certainty; technologies for their control are well developed; the costs of control can be reliably estimated; and there is a long record of experience with the planning and regulatory process for these pollutants.

The primary barrier to meeting water quality standards applicable to these substances is a financial one. There are 125 point source discharges of municipal and industrial wastes to the streams feeding the Haw River; eighty-five of these are classified as municipal with a

collective design flow of 55 million gallons per day. There are also significant quantities of pollutants from nonpoint sources entering the Haw River, probably the most significant ones being associated with sediment from agricultural and construction activities. Substantial investments of capital will be required to build and replace adequate levels of pollution control facilities and management practices that will satisfy water quality standards in the years to come. Like other areas in the Piedmont the population in the Haw basin continue to increase, and as the municipalities seek to provide even the current levels of service, they will need to build additional facilities. They must do so in an environment characterized by sharp reductions in federal support, no state support, continued inflation in the cost of construction at rates of about eight percent a year, and significantly higher costs of financing than they experienced up until 1978. A recently completed study sponsored by the Water Resources Research Institute (D.H. Morcau, Financing of Water and Sewer Services in North Carolina in the 1980s, Rpt. No. 212, December, 1983) indicates that the average city in North Carolina may face rate increases as high as 15 percent a year over the next five years just to stay even. The largest single factor contributing to that increase is the loss of federal and state support. Elimination of state funds through the Clean Water Bond program leaves the state with no economic incentive that it can use to leverage cities to make those kinds of expenditures. There is no state program at the moment to create financial incentives for the agricultural community to adopt the so-called Best Management Practices (BMP).

Recommendations

Therefore, to address the problem of conventional pollutants in the Haw River, I recommend that the General Assembly reconsider its decision to eliminate the Clean Water Bond program. Furthermore, I would recommend that the General Assembly support the proposal being developed by the Department of Natural Resources and Community Development to create incentives for the adoption of BMPs.

Phosphorous

The second major problem of water quality management in the Haw River and Jordan Reservoir is excessive enrichment of nutrients. Recognition of this potential problem led the Environmental Management Commission to classify the reservoir as "nutrient sensitive". The primary method for controlling algal growth and aquatic weeds in the reservoir is to reduce phosphorous levels flowing into the reservoir. Several sets of estimates of phosphorous loads on the reservoir have been prepared from available data, and loads have been identified by several classes of sources. Direct measurements of these loads by individual sources are available only for selected sites, but there is general agreement that these estimates are reasonable. Despite several studies on other lakes in North Carolina and numerous studies on other lakes in North America, we cannot reliably predict the level of algal growth and aquatic plants in Jordan Reservoir. It is especially difficult to predict the occurrence of particular forms of algae that may produce nuisance conditions. The problem of predicting lake responses is made more difficult by the complex hydraulic behavior of Jordan Reservoir, where

the internal flows of water and nutrients are unknown and they are subject to large and sudden changes. The unreliability of predictions of lake responses makes it impossible to evaluate phosphorous reduction programs before they are tested in the field. There is no prior experience in North Carolina from which to make inferences about the effectiveness and costs of phosphorous reduction programs. There is some data from experimental studies supported by EPA and limited applications of technology in other states, but North Carolina lakes tend to exhibit somewhat unique behavior.

There is a need for further study of this problem before expensive solutions are imposed on selected cities in the basin. Initial estimates of these costs, tentative as they may be, indicate expenditures of \$500,000 per year in Chapel Hill and \$1,000,000 per year in Durham. That estimate of cost for Chapel Hill and Carrboro would amount to a ten percent increase in the annual budget for the Orange Water and Sewer Authority, probably a 25 percent increase in sewer rates. It was these probable effects that led OWASA and the City of Durham, in cooperation with the Water Resources Research Institute, to design an experimental program to investigate the effectiveness of alternative treatment technologies and their impact on the Segment IV of Jordan Reservoir, that portion of the reservoir that lies above the Fearington Road bridge and that is considered to be the most severely impacted portion of the lake. The estimated cost of that study alone is estimated to be \$125,000. A more comprehensive study of the cost-effectiveness of phosphorous management for the lake would probably cost in the neighborhood of \$200,000. When you consider the possibility of spending \$1.5 million a year for operating control programs in only two cities, the expenditure of \$200,000 for an evaluation does not appear to be excessive. ~~However~~ *B* Because the State of North Carolina strongly supported the construction of the Jordan Reservoir, because the State classified the Jordan Reservoir as nutrient sensitive, and because that study would have widespread benefits, it is reasonable that the State should bear a portion of its cost.

Other methods for reducing phosphorous levels should also be pursued. Before municipalities are asked to engage in expensive chemical treatment of their wastes, a comparative analysis of that option with a phosphate detergent ban should be undertaken. The only data presented on this issue to date has been provided by the soap and detergent industry. It would not be a terribly difficult task to survey the experience in the Great Lakes basins where there is considerable experience with nonphosphate detergents. Also, there should be an opportunity to evaluate the cost-effectiveness of BMPs for reducing phosphorous loads from agricultural sources.

Recommendations

These observations lead me to recommend that the General Assembly appropriate \$100,000 to match funds from local governments to study the cost-effectiveness of phosphorous reduction programs in the Haw River basin.

Toxic Substances

The third kind of pollution of concern on the Haw River is the threat from toxic substances. There is relatively little known about

this type of risk in the Haw Basin, but what is known is sufficient to justify further investigation. Only the first steps have been taken to quantify the magnitude of this problem. The Division of Environmental Management has used a bioassay procedure to identify selected industrial biocides as being toxic to fish. Only recently have analytical chemical techniques been developed to specifically identify which organic pollutants in rivers. The Water Resources Research Institute supported one study to develop that technology using Haw River water samples (Dietrich, Millington, and Christman, Rpt. No. 206, August 1983). That work is being continued; unfortunately, investigations of this kind are very expensive.

Following this first step of developing the technology by which we can measure these substances, we must proceed to identify the sources and amounts of toxic substances that are entering our streams. Again, we have only begun this task. WREI will soon publish a study by Professors Turner and DiGiano at UNC-Chapel Hill that shows the relationship between surface water supplies in North Carolina and upstream dischargers. The report also contains some rough estimates of agricultural pesticides by river basin. These indicators and estimates are admittedly crude, and they should not be used to infer a major threat to human health. They do give some insight to the locations of dischargers and the parent substances that may be of concern. Very few direct measurements on wastewater effluents have been made, and few have been made on samples taken from streams. The Turner-DiGiano study does suggest that much of the problem is located in two river basins in the state, one of which is the Cape Fear.

The state of knowledge about the waterborne toxics problem in North Carolina is some what comparable to our state of knowledge about conventional pollutants when the state began its comprehensive pollution control program in 1951. That analogy does suggest that what is needed is a comprehensive survey of pollution for toxic substances, a procedure that has been well established for conventional pollutants and nutrients.

Recommendation

Therefore I recommend that the General Assembly direct the Division of Environmental Management to undertake a comprehensive survey of toxic pollution in the Haw River Basin and provide sufficient funds for that purpose.

APPENDIX D

INTRODUCED BY:

Referred to.

1 A BILL TO BE ENTITLED
2 AN ACT TO PROVIDE FOR THE SALE OF CLEAN DETERGENTS IN NORTH
3 CAROLINA.

4 The General Assembly of North Carolina enacts:

5 Section 1. Article 44 of Chapter 14 of the General
6 Statutes is amended by adding a new section to read:

7 "§14-346.3. Sale of cleaning agents containing phosphorus.

8 (a) No person shall sell any cleaning agent other than a
9 cleaning agent for machine dishwashing or cleansing of medical
10 and surgical equipment that contains more than 0.5 percent
11 phosphorus by weight.

12 (b) No person shall sell any cleaning agent for machine
13 dishwashing or cleansing of medical and surgical equipment that
14 contains more than 8.7 percent phosphorus by weight.

15 (c) No person shall sell any chemical water conditioner
16 that contains more than 20 percent phosphorus by weight.

17 (d) For purposes of this section:

18 (1) 'cleaning agent' means any laundry detergent,
19 laundry additive, dishwashing compound, cleanser,
20 household cleaner, metal cleaner, degreasing compound,
21 commercial cleaner, industrial cleaner, phosphate
22 compound or other substance intended to be used for
23 cleaning purposes;

24 (2) 'chemical water conditioner' means a water

1 softening chemical or other substance containing
2 phosphorus and intended to treat water for machine
3 laundry use.

4 (e) Any person who violates any provision of this section
5 shall be guilty of a misdemeanor punishable by a fine not exceeding
6 five hundred dollars (\$500.00), imprisonment for not more than
7 six months, or both."

8 Sec. 2. This act shall become effective January 1, 1985.

APPENDIX E

NRCD CLEAN WATER BUDGET

SUMMARY

NRCD CLEAN WATER BUDGET

SHORT SESSION 1984

NUTRIENT SENSITIVE WATERSHED BUDGET

Soil and Water	\$ 2,997,160	
Forestry	292,796	
Land Resources Information	117,800	
Water Quality	715,428	
Sediment Control	158,228	
	<u> </u>	\$ 4,281,412

COASTAL WATER MANAGEMENT BUDGET

Land Inventory	\$ 133,333	
Demonstration	100,000	
Lake Mattamuskeet	66,667	
Best Management Practices Education	5,000	
Research	160,000	
	<u> </u>	\$ 465,000

TOXICS WATER QUALITY BUDGET

Monitoring	\$ 876,887	
Permitting	86,449	
Compliance & Facility Oversight	439,415	
Analytical Laboratory Support	460,942	
Program Planning	60,471	
Leaking Underground Storage Tanks	201,489	
	<u> </u>	\$ 2,125,653

CAPITAL IMPROVEMENTS \$ 5,150,800

POLLUTION PREVENTION PROGRAM \$ 182,663

WATER RESOURCES MANAGEMENT \$ 96,388

TVA LAND RECLAMATION \$ 50,000

TOTAL FISCAL YEAR '84-'85 \$ 12,351,916

NUTRIENT SENSITIVE WATERSHED BUDGET

NUTRIENT SENSITIVE WATERS

Three water bodies, the Chowan River, the Falls Reservoir and the Jordan Reservoir have been legally declared by the State's Environmental Management Commission to be nutrient sensitive - other water bodies will follow. Unless remedied and reversed the assured end result is the algal choked death of these water bodies.

- We know the causes and sources of the algal problems in these water bodies.
- We know how the problem can be solved.
- We know what it will cost to get the job done.

The two reservoirs alone represent more than a \$300 million investment with combined annual benefits to the State of over twenty million dollars (\$20,000,000) each year.

Agriculture is the major source of the problem and the major cost is agricultural best management practices for farmlands in the three watersheds at an annual cost of \$2,997,160. This amount includes \$2,450,000 each year for cost share grants to farmers. Over a five year period, 3,750 farms would be served to reduce sediment and associated nutrients by 25%.

Forestry best management practices require in-the-woods training and technical assistance to loggers and silvicultural contractors and on-the-ground assistance to forest landowners to stabilize logging roads, skid trails, and other critical areas. The annual cost is \$292,796. Forest lands account for 52% of the total land area surrounding nutrient sensitive waters. Forestry's proposal is geared to reducing sedimentation from forestry practices by 60% over five years.

Water Quality analysis, monitoring, inspection and enforcement programs are critical to determining cause and effect relationships, and ensuring a fair and firm water quality regulatory program with technical assistance capabilities for local governments and businesses in the watersheds. The annual cost of approximately \$616,000 will result in an effective management program to assess and address nutrient sensitive waters in North Carolina.

The State's sediment control program is sound in theory but because of minimal resources it is recognized as weak where local programs do not exist. Targeting program implementation to these watersheds requires an annual budget of \$158,228 in order to achieve the goal of a 50% reduction in urban sediment delivery which will result in an estimated combined savings of \$500,000 per year based upon the Corps design criteria.

Computerized mapping and analysis of soils and other data necessary for resource management decisions is a foundation block underpinning over two and one-half million acres of land in these three watersheds. Effective use of resources and manpower is achieved by identifying and targeting critical problem areas.

The total Fiscal Year Nutrient Sensitive Watershed Budget for '84-'85 is \$4,281,412.

NUTRIENT SENSITIVE WATERSHED BUDGET PROPOSAL

	84-85 1st year	85-86 2nd year
<u>AGRICULTURAL BEST MANAGEMENT PRACTICES</u>	2,997,160	2,997,160
<p>(Division of Soil & Water)</p> <p>Critical eroding areas will be identified and given priority for technical assistance and cost-sharing at 80-20 for farmers with a goal of reducing erosion by 27% or 116,500 tons in the three watersheds per year.</p>		
<u>FORESTRY BEST MANAGEMENT PRACTICES</u>	292,796	292,796
<p>(Division of Forest Resources)</p> <p>Technical assistance to loggers and silviculture contractors will almost eliminate erosion on woodlands. Program accomplishments will be 250 operator training session, 300 landowner contacts, and 225 forest tracts stabilized per year.</p>		
<u>LAND RESOURCES INFORMATION</u>	117,800	108,000
<p>(Division of Land Resources)</p> <p>Budget and management decisions for targeting available resources to priority areas is dependent upon having accurate data and the ability to analyze the data for specific purposes. The annual budget will result in graphic displays of many levels of data - soils, streams, watersheds, roads, slopes - to pinpoint precision for the entire three nutrient sensitive watersheds.</p>		
<u>WATER QUALITY MONITORING, ANALYSIS, COMPLIANCE ASSISTANCE AND ENFORCEMENT</u>	715,428	515,928
<p>(Division of Environmental Management)</p> <p>At present statewide Natural Resources and Community Development has a staff ratio of 1 person responsible for every 100 dischargers. The proposed budget for the nutrient sensitive watersheds will result in a water quality program that increases over present capabilities to a ratio of 1 person per 40 dischargers in the nutrient sensitive watersheds.</p>		
<u>URBAN SEDIMENT CONTROL PROGRAMS</u>	158,228	158,228
<p>By targeting resources to the three watersheds we will establish sediment control from urban sources and reduce the erosion rate by 50% or approximately 105,000 tons per year for the Falls and Jordan Watersheds.</p>		

FISCAL YEAR '84-'85 TOTAL NUTRIENT SENSITIVE WATERSHED BUDGET	\$ 4,281,412
FISCAL YEAR '85-'86 TOTAL NUTRIENT SENSITIVE WATERSHED BUDGET	\$ 4,072,112

COASTAL WATER MANAGEMENT BUDGET

NORTH CAROLINA'S COASTAL WATER MANAGEMENT BUDGET

In response to conflicting uses of resources among forest, fishing, agriculture and wildlife interests in the coastal region an ad hoc committee was appointed by Governor James B. Hunt, Jr., in May, 1981, to bring together those interested in these uses so they could reach a mutual understanding of the problems faced by each group. The Task Force was directed to formulate a balanced approach that would allow agriculture, forestry, fishing, and wildlife to develop in a manner acceptable to all interests.

The Governor's Coastal Water Management Task Force presented its ten recommendations in published form on December 1, 1982 and immediately formed an Implementation Committee. A status report is presently being printed and will be made public later this month.

The Implementation Committee recognizes the urgent need for initiating and completing the Task Force recommendations. It recommended that the Department of Natural Resources and Community Development be designated as the state agency responsible for carrying out the recommendations, and that the Coastal Water Management Task Force recommendations be a top priority item in the Department's program and legislative requests.

The proposed Coastal Water Management Budget contains funding for five of the ten recommendations with an annual budget of \$465,000.

E-11
COASTAL WATER MANAGEMENT BUDGET

	84-85 1st year	85-86 2nd year
<u>RECOMMENDATION 1 - INVENTORY</u>	133,333	133,333
<p>A comprehensive inventory and classification of land and water resources is essential and must be the basis of any management plan. Many of the data necessary for this classification already exist and will be entered into the computerized mapping (LRIS - Land Resources Information Service) system.</p>		
<u>RECOMMENDATION 3 A - BROAD CREEK DEMONSTRATION</u>	100,000	100,000
<p>Recommendation three called for the development of a "demonstration project" located where a watershed was highly agricultural, the receiving estuarine nursery was identified to have potential for improvement, and the drainage system was amenable to manipulation.</p> <p>Broad Creek is located in an area that corresponds to major nursery importance. The size of the system is very attractive, since it is small enough to study as a whole if necessary. Drainage canals leading to the embayment are controllable with little costs and alternative routes exist for outlet of water under excess rainfall conditions. Data exist to verify nursery characteristics. The potential for landowner cooperation is excellent.</p>		
<u>RECOMMENDATION 3 B - LAKE MATTAMUSKEET</u>	66,667	66,666
<p>The State should encourage and support development of a long-range comprehensive water management plan for the entire Lake Mattamuskeet drainage area. This recommendation is made particularly because the Division of Marine Fisheries has indicated that the Rose Bay area has the best chance of success for showing improvement of a primary nursery area from reduced freshwater entry.</p>		
<u>RECOMMENDATION 6 - VOLUNTARY BEST MANAGEMENT PRACTICES EDUCATION</u>	5,000	5,000
<p>The State should encourage -- through economic incentives, expanded educational programs and continued technical assistance -- Best Management Practices on forestry and agricultural lands. Such Best Management Practices (BMP) are designed to reduce sediments, nutrients and pesticides in the aquatic system.</p>		
<u>RECOMMENDATION 9 - RESEARCH</u>	160,000	160,000
<p>It is generally agreed that research and monitoring are needed to establish a relationship among land use and fisheries and wildlife habitat. Several research organizations like the UNC Sea Grant College Program, UNC Water Resources Research Institute and the NCSU Agricultural Research Service are currently actively involved in research.</p>		
FISCAL YEAR '84-'85 COASTAL WATER MANAGEMENT BUDGET	\$465,000	
FISCAL YEAR '85-'86 COASTAL WATER MANAGEMENT BUDGET	\$465,000	

TOXIC CONTROL IN NORTH CAROLINA WATERS

NORTH CAROLINA TOXIC'S CONTROL STRATEGY AND BUDGET

The impacts of potential toxic compounds can be observed throughout North Carolina. Adequate water supplies are critical from Manteo to Murphy. Recently this area has been highlighted by concerns over Jordan and Falls Lakes. Similar concerns have arisen over other potential water supplies such as the proposed Randleman Lake project. Other concerns are present in all of our developed watersheds of the State. Recent work on Biocide and EDB effects and uses within the State has also raised many unanswered questions concerning just what compounds are in our waters.

For several years most efforts toward controlling toxics have been approached by an individual chemical approach to control specific pollutants. Yet, this approach alone presents many problems. Evaluating toxics by individual compounds is dependent on the knowledge of toxicity of the compound, and it is dependent on the knowledge of chemical mixtures of waste products. Other factors which hinder this approach are the requirements to identify and quantify all those compounds that may be in a wastewater source. With the extremely vast number of chemicals in use today, (over 44,000 developed since 1975) and with approximately 2,000 plus new compounds being developed each year, it is mandatory that other innovative approaches be employed to evaluate toxics statewide in North Carolina.

The current staffing and support funds now available are totally insufficient to provide the necessary levels of activities required to efficiently and effectively address toxics in North Carolina. Whereas the basic organizational structures exist for the implementation of these programs, it is restrained in its effectiveness by insufficient staffing and operational support funds.

The implementation will be coordinated through six major components: monitoring, permitting, compliance, analytical support, program planning and the leaking underground storage tank program. Each of these major components will have multiple responsibilities, capabilities, and expertise necessary to comprehensively address toxic compounds in the environment. The annual cost of establishing a toxics program totals \$2,125,653.

WATER QUALITY TOXIC CONTROL BUDGET

84-85

MONITORING

876,887

Ambient monitoring activities will be a key component in the strategy to address toxics. The program will be directed toward the collection and evaluation of data from selected critical sites statewide to enable a comprehensive evaluation of trends, current compound levels, and priority water bodies. Bioassay evaluations, biological monitoring and intensive surveys will be used to collect data. With the generation of vast amounts of data and information including chemical, biological, and toxicological, data handling capabilities will be essential for the operation of an efficient, effective, and responsive toxics program.

PERMITTING

86,449

One of the products of an effective toxics program will be a more comprehensive review of NPDES permit limits for facilities. It is essential that staff be available to incorporate biological, chemical, and toxicological requirements and restrictions in permits to dischargers.

COMPLIANCE AND FACILITY OVERSIGHT

439,415

Currently, the Water Quality Programs permits over 2,700 individual facilities to discharge to the State's waters. Ensurance of permit compliance and facility review and evaluation is a key component of an effective toxics strategy. As toxicity limits and additional chemical limits are included in the permitting process, it will be essential that we increase our capabilities to monitor and access discharge facilities to ensure adherence to permit restrictions. At current staffing levels only approximately 20% of the 2,700 plus facilities are inspected yearly. At this rate some facilities may not be inspected but every 3-5 years.

ANALYTICAL LABORATORY SUPPORT

460,942

An effective statewide toxics program will necessitate adequate analytical support for all phases of the evaluation program. Current staffing is insufficient even for the level of present operations. Backlogs of samples for analysis constantly exceed 1-2 years of work. Evaluations are curtailed; follow-up investigations are limited because of the lack of adequate analytical staffing, equipment, support funds, and space restrictions. With increased assessment of toxic compounds, it will be necessary to develop more sophisticated methodology to enable organic and metal compound analyses at much lower detection limits.

2.

84-85

PROGRAM PLANNING

60,471

Initial toxicity studies are highly technical and site specific. As numerous studies are completed, and as expanded capabilities are developed, it is important to increase the capability to implement sound management programs to deal with toxicity issues.

LEAKING UNDERGROUND STORAGE TANKS

201,489

There are more than 350,000 underground storage tanks in North Carolina for the purpose of petroleum product storage alone. Estimates are unavailable for tanks storing chemical or other products, or chemical residuals and other wastes. Any tank will leak if left buried long enough, and too large a number are kept in use long after the manufacturers' estimated tank life, generally averaging 15-20 years.

Incidents attributed to underground storage tank leaks are probably the most often-reported groundwater/well contamination problem. Petroleum pollution is in itself a difficult problem, but highly toxic additives, some with significant water solubility, are rapidly elevating some petroleum products to the top of federal (TOSCA) toxic substances list. As the hazards become more recognized, the need for better trained and organized response to pollution becomes more apparent.

FISCAL YEAR '84-'85 TOTAL TOXICS WATER QUALITY BUDGET \$2,125,653

TOXIC CONTROL CAPITAL IMPROVEMENTS BUDGET

TOXIC CONTROL CAPITAL IMPROVEMENTS BUDGET

With the additional staffing and support equipment mentioned in the Toxics Water Quality budget, there is a definite need for additional space. Many of our technical programs are operating out of already crowded houses, basements, and mobile trailers. Office and laboratory facilities are extremely limited, even at the current staff levels. For an effective, efficient and productive program it is estimated that approximately 30,000 square feet of laboratory and office space would be required.

Such capital expansion would allow for a 40% expansion of our State's environmental analytical capabilities and also allow for consolidation of our technical programs into a more efficient and cost effective unit. The one time expenditure for capital improvements is \$5,150,800.

POLLUTION PREVENTION PROGRAM BUDGET

POLLUTION PREVENTION PROGRAM

Governor Hunt has designated Pollution Prevention Pays as the primary waste management strategy for North Carolina. Pollution Prevention Pays is an approach to minimize and prevent pollution at the source rather than relying on end-of-the line treatment processes and large waste disposal needs. The Department has been designated as the lead agency to implement the Program with direct ties to the Governor's Waste Management Board, Department of Human Resources, Department of Commerce, and the N.C. Board of Technology.

The Pollution Prevention Program within the Division of Environmental Management is in an excellent position to work with industry, local government and citizens. Through the Division's water, air and groundwater programs, there is direct contact with situations to apply pollution prevention techniques. Innovative techniques which work for one industry can be quickly transferred to other industries throughout the State. A tremendous network is available through this program for positive application of pollution prevention and waste reduction techniques with invaluable feedback to state agencies and research institutions concerning what works and what is needed.

A central program with adequate staffing and funding is required to assure the visibility and provide the momentum for the pollution prevention effort. The need for information collection, organization, application, and evaluation is essential. The program must develop staff support to work with regulators and the regulated to prevent pollution, provide economic benefits, improve the environment, and reduce the conflict in achieving these objectives.

The annual cost of establishing the Pollution Prevention Program totals \$182,663.

WATER RESOURCES MANAGEMENT BUDGET

WATER RESOURCES MANAGEMENT

As North Carolina's economy grows, the State is facing increasing competition for water resources. In some cases, these competing pressures are arising in interstate river basins where North Carolina can be affected by unilateral actions in neighboring states. The State needs to take action under the Water Use Act of 1967 and under other statutes to document present and future needs for water in North Carolina for municipal and industrial supplies, agricultural irrigation, hydroelectric power generation, environmental quality and other purposes. In the Roanoke River Basin, the State needs to take immediate action to provide assurance for the needs of present and future water users in North Carolina.

The first priority for attention by this program will be the Roanoke River Basin. The Department must undertake a capacity use study in this basin and also provide staff support for the legal proceedings against the City of Virginia Beach which proposes to divert 60 million gallons a day of water out of the basin. These requirements cannot be met with the Department's existing resources. The Department estimates that the actions already undertaken in the Roanoke River Basin will require an intensive effort of at least two years and perhaps longer.

When the issues in the Roanoke Basin are resolved the Department will move to resolve issues in other river basins on a priority basis. In addition to supporting the capacity use study and the legal proceedings, this program will also provide useful data and technical assistance for municipal, industrial, and private water users who are faced with problems arising from competition for available supplies of water.

The total Fiscal Year Water Resources Management Budget for '84-'85 is \$96,338.

APPENDIX F

INTRODUCED BY:

Referred to:

1 A BILL TO BE ENTITLED

2 AN ACT TO CREATE THE CRIME OF FELONIOUS DUMPING TOXIC SUBSTANCES
3 INTO WATERS AND STREAMS AND TO CONSOLIDATE THE CRIMINAL STATUTES
4 REGARDING THE DUMPING OF TOXIC SUBSTANCES.

5 The General Assembly of North Carolina enacts:

6 Section 1. Chapter 14 of the General Statutes is amended
7 by adding the following new section:

8 "G.S. 14-284.3. Dumping Toxic Substances.

9 Any person who willfully dumps or discharges any of the
10 following toxic substances into the waters of North Carolina, or
11 into any disposal system which discharges into the waters of North
12 Carolina, shall be guilty of a Class I felony:

- 13 1. Acenaphthene
- 14 2. Acrolein
- 15 3. Acrylonitrile
- 16 4. Aldrin/Dieldrin
- 17 5. Antimony or organic or inorganic compounds of
18 antimony
- 19 6. Arsenic or organic or inorganic compounds of arsenic
- 20 7. Asbestos
- 21 8. Benzene
- 22 9. Benzedine
- 23 10. Beryllium or organic or inorganic compounds of
24 beryllium

- 1 11. Cadmium or organic or inorganic compounds of
- 2 cadmium
- 3 12. Carbon tetrachloride
- 4 13. Chlordane
- 5 14. Chlorinated benzenes (other than dichlorobenzenes)
- 6 15. Chlorinated ethanes (including 1,2-dichloroethane,
- 7 1,1,1-trichloroethanes, and hexachloroethane)
- 8 16. Chloroalkyl ethers (chloroethyl or mixed ethers)
- 9 17. Chlorinated naphthalene
- 10 18. Chlorinated phenols (other than those listed
- 11 elsewhere in this section; includes trichlorophenols
- 12 and chlorinated cresols)
- 13 19. Chloroform
- 14 20. 2-chlorophenol
- 15 21. Chromium or organic or inorganic compounds of
- 16 chromium
- 17 22. Copper or organic or inorganic compounds of copper
- 18 23. Cyanides
- 19 24. DDT or metabolites of DDT
- 20 25. Dichlorobenzenes (1,2-,1,3-, or 1,4-dichlorobenzenes)
- 21 26. Dichlorobenzidine
- 22 27. Dichloroethylenes (1,1-, or 1,2-dichloroethylene)
- 23 28. 2,4-dichlorophenol
- 24 29. Dichloropropane or dichloropropene
- 25 30. 2,4-dimethylphenol
- 26 31. Dinitrotoluene
- 27 32. Diphenylhydrazine
- 28 33. Endosulfan or metabolites of endosulfan

- 1 34. Endrin or metabolites of endrin
- 2 35. Ethylbenzene
- 3 36. Fluoranthene
- 4 37. Haloethers (other than those listed elsewhere
- 5 in this section; includes chlorophenylphenyl
- 6 ethers, bromophenylphenylether, bis(dichloroiso-
- 7 propyl) ether, bis-(chloroethoxy) methane and
- 8 polychlorinated diphenyl ethers)
- 9 38. Halomethanes (other than those listed elsewhere
- 10 in this section; includes methylene chloride,
- 11 methylchloride, methylbromide, bromoform,
- 12 dichlorobromomethane)
- 13 39. Heptachlor or metabolites of heptachlor
- 14 40. Hexachlorocyclobutadiene
- 15 41. Hexachlorocyclohexane
- 16 42. Hexachlorocyclopentadiene
- 17 43. Isophorone
- 18 44. Lead or organic or inorganic compounds of lead
- 19 45. Mercury or organic or inorganic compounds of mercury
- 20 46. Naphthalene
- 21 47. Nickel or organic or inorganic compounds of nickel
- 22 48. Nitrobenzene
- 23 49. Nitrophenols (including 2,4-dinitrophenol, dinitrocresol)
- 24 50. Nitrosamines
- 25 51. Pentachlorophenol
- 26 52. Phenol
- 27 53. Phthalate esters
- 28 54. Polychlorinated biphenyls (PCBs)

- 1 55. Polynuclear aromatic hydrocarbons (including
- 2 benzanthracenes, benzopyrenes, benzoflouranthene,
- 3 chrysenes, dibenzanthracenes, and indenopyrenes)
- 4 56. Selenium or organic or inorganic compounds of selenium
- 5 57. Silver or organic or inorganic compounds of silver
- 6 58. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
- 7 59. Tetrachloroethylene
- 8 60. Thallium or organic or inorganic compounds of thallium
- 9 61. Toluene
- 10 62. Toxaphene
- 11 63. Trichloroethylene
- 12 64. Vinyl chloride
- 13 65. Zinc or organic or inorganic compounds of zinc

14 The definitions contained in G.S. 143-213 shall apply to this section."

15 Sec. 2. G.S. 14-159.1 is recodified by renumbering it to
16 become G.S. 14-284.4, and is amended by replacing the citation
17 "G.S. 130-166.41(12)" in the first sentence of the section with the
18 citation: "G.S. 130A-313(10)".

19 Sec. 3. G.S. 14-382 is recodified in its entirety as
20 G.S. 14-284.5.

21 Sec. 4. This act shall become effective October 1, 1984.

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APPENDIX G .

INTRODUCED BY:

Referred to:

1 A BILL TO BE ENTITLED
2 AN ACT TO PROVIDE REGULATORY FLEXIBILITY IN THE SETTING OF WATER
3 QUALITY STANDARDS AND MANAGEMENT PRACTICES.

4 The General Assembly of North Carolina enacts:

5 Section 1. Chapter 143 of the General Statutes is
6 amended by repealing subsection (c) of G.S. 143-215.

7 Sec. 2. This Act is effective upon ratification.

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APPENDIX H

INTRODUCED BY:

Referred to:

1 A JOINT RESOLUTION AUTHORIZING THE LEGISLATIVE RESEARCH COMMISSION
2 TO CONTINUE ITS STUDY OF WATER QUALITY IN THE HAW RIVER AND
3 JORDAN RESERVOIR.

4 Be it resolved by the House of Representatives, the Senate concurring:

5 Whereas, Subdivision 16 of Section 1 of Chapter 905 of the
6 1983 Session Laws (House Bill 1142) authorized the Legislative
7 Research Commission to study the issues raised by House Joint
8 Resolution 1257, namely the "quality of the water in the Haw River
9 and Jordan Reservoir"; and

10 Whereas, the Legislative Research Commission's Committee
11 on Water Quality in the Haw River and Jordan Reservoir met three
12 times prior to the Regular 1984 Session of the 1983 General Assembly;
13 addressed a number of water-related issues, notably the effects of
14 toxic chemicals, nutrients and sedimentation on the Haw and Jordan
15 waters and the problems of wastewater treatment and water quality
16 management; and

17 Whereas, the Commission on the Future of North Carolina
18 in its report, The Future of North Carolina, Goals and Recommenda-
19 tions for the Year 2000, has pointed out that the State's "economic
20 growth sought for tomorrow requires investments today in water
21 supply (and) wastewater systems" and has recommended strengthened
22 efforts and expanded resource allocations to clean up and prevent
23 water pollution, to "ensure an adequate supply and equitable
24 allocation of water resources", and to "stop erosion and fertility

1 loss of productive soil and reduce water pollution from sedimenta-
2 tion";

3 Now, therefore, be it resolved by the House of Representa-
4 tives, the Senate concurring:

5 Section 1. The Legislative Research Commission is autho-
6 rized to continue to study the Water Quality in the Haw River and
7 Jordan Reservoir, as authorized by Subdivision (16) of Section 1
8 of Chapter 905 of the 1983 Session Laws.

9 Sec. 2. The Commission may report its findings, together
10 with any recommended legislation, to the 1985 General Assembly.

11 Sec. 3. This Resolution is effective upon ratification.

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