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EDITORIAL

WATER AUTHORITY WORTH STUDY

The Raleigh News and Observer
May 30, 1978

House Speaker Carl J. Stewart, Jr., has proposed an interesting idea--the possibility of creating a state authority that would furnish water to any North Carolina city or town at wholesale cost, with the main distribution line running through the heart of Piedmont North Carolina. But as Stewart himself acknowledges, this drastic reshaping of the state's water policy will require a thoughtful, deliberative approach. Stewart suggests that a legislative study commission do the job.

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State policy now is directed toward the planning and development of regional water systems wherever possible. This approach produces economies of scale that cannot be had with smaller, individualized systems. A further policy principle provides that North Carolinians make "the most efficient use of available water resources." The treatment and sale of water through a state authority would have to be measured against that objective.

North Carolina's ground and surface water resources, while adequate for the needs of today's population, industry and agriculture, are not inexhaustible. The N.C. Department of Natural Resources and Community Development said in a study released last year, "North Carolina, with careful planning, management and development, can meet its water needs during the coming decades...(But) if the people of North Carolina do not wisely plan and manage their water resources, not only will their economic life be impaired, but irreparable harm to the environment could occur...An improved water resource management system is needed to obtain the desired results."

One factor favoring a state water authority is the increased competition among localities for ground and surface water. Some wind up with a surplus and others with too little water. There are also conflicts involving upstream and downstream impoundment and uses. Even so, the state study concluded that "most public systems in the state provide a reasonably safe and adequate supply of water."

A few obvious questions are raised by Stewart's proposal. Where would the state get its raw water and how would the state system supplement or tie in with the scores of existing local water supply systems? In view of the size of North Carolina, especially its spread from east to west, would it be practical to have a state network of feeder lines off a main distribution line in the Piedmont? Would localities storing, treating and distributing their own water be competitive industrially with those buying water at wholesale from the state? Would the feeder lines envisioned by Stewart overload the state with strip development?

But these are questions, not objections. Long-term state policy looks not only to the conservation and adequacy of water supplies but also to the provision of water in populated places where it is now in short supply. Some kind of state system might hold part of the answer. Right now, it's like the unfamiliar pond one doesn't dive into without scouting beneath the surface for rocks, tree stumps and broken bottles.

LETTER TO THE EDITOR

Gentlemen:

I read with great interest the commentary concerning the delaying of the impoundment at the Jordan Reservoir.

No words can express my dismay at the calloused, damned-to-the-downstream-dweller attitude expressed by those protesting reservoir use. Just this century, history has recorded several floods in the Cape Fear River Basin. Proper use of impoundment would prevent the loss of food, dwellings, and the damages and misery caused to thousands of people by these floods.

At the present time, and even more so in the past two decades, population growth has forced the use of the Cape Fear waters for human sustenance. Access to a stable, assured water supply source has become terribly important. What justification can deny water to needy humans? With all of our justifiable concern about environmental needs and resources, what takes precedence over actual water supply needs?

Some have a weird scramble of priorities. The situation is all but incredible to us who KNOW what the priorities are. We know we need stability of water supply and freedom from the fear and effects of flooding.

Yours very truly,

Alfred N. Brafford
Town Supervisor
Town of Hope Mills, North Carolina

WATER MANAGEMENT-- A STATE AND LOCAL PROBLEM

Water quality is a very important part of the total water-management picture, especially in North Carolina, where we are supposed to have "abundant" water resources. Water management is a complex issue and should be administered at the regional, state, and local levels, even though the federal government carries a "big stick" and has a large source of funds.

The basic problem is to allocate the available water resources. This should include: water quantity, or the right to use a certain amount of water, and water quality, or the right to use the capacity of water to assimilate wastes. In recent years, we have been discovering that the capacity of water to handle normal biological wastes is considerable, whereas its capability to handle certain toxic chemicals and heavy metals is poor.

Water Rights

The western states came to grips with the problem of managing water over a hundred years ago. In that part of the country, the climate is semiarid, and there is not enough water to meet all the irrigation, mining, industrial, and municipal demands. Because of this they adopted a doctrine of water law called the "appropriation doctrine," which essentially assigns a property right to water which can be owned by the person making use of the water. In the East we have developed a doctrine known as the "riparian doctrine," which states that landowners who are next to or "riparian to" a stream have a right to have that water flow past their property undiminished in quality or quantity. This doctrine implies that water is so abundant it doesn't pay to define rights more precisely. As the pure riparian doctrine is not practical to administer, all kinds of modifications exist in the eastern part of the country.

A State and Local Problem

Water management is more of a state and local problem than national. The federal government, however, sets the pace through legislation. For example, one goal of the Federal Water Pollution Control Act and its Amendments is the complete elimination of all discharges of pollutants into receiving waters. It is clear that such a complete elimination is not only impossible but would have a near-infinite cost. It is at the state and local levels, however, that these goals must be modified and implemented. The state needs to develop a strong role in water management to ensure that state goals are fully considered. It needs to stand as an intermediary between the federal government and local government and to advise and assist local government to develop effective programs.

Examples

California is a good example of a state where effective water management strategies have been developed. The California Department of Water Resources, in fact, has developed an extensive set of reservoirs, canals, and other facilities to deliver water to cities, farmlands, and industries where it is urgently needed. Also, California has various local boards and authorities with the power to develop wholesale water supplies, engage in flood control activities, manage ground and surface water together, and to carry out studies and research.

There are other advanced state and local water institutions around the country and overseas. One of the earliest such authorities was the Miami Conservancy District in Ohio. The District was organized in the early part of this century in the aftermath of some disastrous floods. It was found that water could be managed on a basinwide basis cooperatively better than competitively.

In Europe a number of advanced and innovative water management practices have been developed. One which is frequently cited is in the Ruhr Valley in Germany. Mining concerns and industries were polluting the water excessively even before 1900. It was found necessary to organize cooperatives to develop the water supply and wastewater-handling capacity of several tributaries to the Rhine River. These cooperatives organized industry and government to secure finances and develop needed water management facilities such as reservoirs and treatment plants.

Water management in Britain has received a great deal of attention in the last few years. As of 1974, Britain had effectively removed all subsidies of water by the central government and consolidated supervision into ten regional water authorities.

We need to develop effective water management capabilities and strategies for North Carolina. These should include the capacity to manage ground and surface water on a basin-by-basin basis. Such problems transcend the capabilities of local government, as their perspectives must necessarily end at their own limits. On the other hand, local governments and industries need to band together to cooperatively develop supplies of interest to several parties. These needs suggest a natural role for the state government or regional institutions to help coordinate water development.

.....Neil S. Grigg
Tar Heel Economist
(May 1978)

VIRGINIA WATER WITHDRAWAL FROM LAKE GASTON OPPOSED

A public meeting was held in Emporia, Virginia, June 12 on the water supply for Hampton Roads, Virginia. Public input was solicited

by the Corps of Engineers to the source of water tentatively selected as the most feasible means of meeting the future needs of that area.

The North Carolina position was presented to the meeting by Howard Lee, secretary of the Department of Natural Resources and Community Development. Lee indicated opposition to diversion of water from the Roanoke and Chowan basins.

The U.S. Army Corps of Engineers has tentatively selected Lake Gaston (Alternative C) as the water supply source for the needs of the Hampton Roads area.

Under the proposal, 70 million gallons of water would be withdrawn from Lake Gaston in the first phase of the plan, and up to 240 million gallons of water a day would be withdrawn in later phases.

Lee said:

"In light of North Carolina's future water needs, and in view of our state goals and policy on growth and development, we feel there is not a surplus of water in the Roanoke and Chowan basins. Therefore, we must protect the vital interests of our state by opposing any diversion of water from either of these basins that would restrict North Carolina's economic development or adversely affect the interests of North Carolina citizens. We believe the Corps of Engineers' Alternative C, which proposes an unspecified and presumably unlimited amount of water withdrawal from the Roanoke River Basin, would jeopardize our interests. We must, therefore, oppose Alternative C.

"We believe that the water supply needs of Southeastern Virginia can be met without diverting water from either the Roanoke Basin or the Chowan Basin. It is our opinion that the water supply needs of the Hampton Roads area can be met from the resources of the James River Basin. We do not accept as valid that because the quality of water in the James River is poor, there can be no further major withdrawals of water supply from that river. Nor do we believe that the resources of the James River Basin must be preserved to meet the long-range needs of metropolitan Richmond and other urban areas in the upper James Basin at the expense of diverting water from another basin which does not have significant excess. North Carolina communities and industries are spending vast sums of money to clean up our rivers so they are available for long-range water uses. We believe the quality of water in the James River could also be improved to a level that would make that river suitable as a source of water supply for Southeastern Virginia. We would urge that serious consideration be given to this alternative."

McRORIE NAMED DIRECTOR OF DIVISION OF ENVIRONMENTAL MANAGEMENT

A. F. (Mac) McRorie has been named director of the N.C. Division of Environmental Management.

McRorie, 50, has previously been acting director of the Division of Environmental Management. He has held a number of environmental engineering and administrative positions in state and local government in North Carolina over the past 20 years. He has a bachelor's of civil engineering from North Carolina State University and a master's degree from NCSU in sanitary engineering.

He was assistant director of public utilities for High Point for several years.

McRorie has been acting director of the Division since January when W. E. Knight retired.

As director he will supervise state programs for water and air quality, water resources planning, and groundwater management.

He is a native of Troy.

Howard Lee, secretary of the Department of Natural Resources and Community Development, said "Mr. McRorie has a broad range of knowledge in the area of environmental management. His experience with the problems and challenges of environmental protection at the local level will be of great assistance to the department and the state."

WATER POLICY PROPOSED BY PRESIDENT

President Carter has announced a national water policy which increases the involvement of the states in federal water project planning.

State Cost-Sharing

The President will send to Congress a legislative proposal to require a state up-front contribution to the cost of federal water projects. For projects with a salable output such as water supply or hydroelectric power, the contribution would be 10 percent. States would then receive 10 percent of those revenues. The requirement would be only 5

percent for nonvendible project purposes such as flood control.

Municipal Water Supply Pricing

The Administration will also be asking Congress to pass legislation which would allow states the option of requiring "conservation pricing" for municipal and industrial water supplied through federal projects.

Tightening Project Criteria

The President is establishing more stringent criteria for setting priorities among the water projects eligible for authorization or appropriation, and reforming procedures to assess costs and benefits of a project.

In the future, projects must have met economic benefits unless environmental benefits clearly compensate for the higher cost, and must stress water conservation. Projects must have no significant safety problems.

Evidence of active public support including support by local officials would be necessary for project approval. State support evident through cost-sharing would give a project higher priority.

Proposed Funding for Planning

The President is proposing a substantial increase from $3 million to $25 million annually in the funding of state water planning to increase the states' capability to manage water resources effectively. He is also asking Congress to provide another $25 million annually to fund state water conservation technical assistance programs, which could be passed through to counties and cities for use in urban and rural water conservation programs. The funds would be for 50 percent matching grants.

Administratively, the President is directing all federal agencies which affect water supply to encourage water conservation.

To strengthen the federal/state/local partnership in addressing water resources problems, the President is forming an intergovernmental task force (which will include local representation) to serve as a continuing guide as water policy reforms are put into effect.

CONTROL OF TOXIC SUBSTANCES EMPHASIZED IN FEDERAL WATER POLLUTION LAWS

"It is becoming increasingly clear that control of toxic pollutants will be receiving more and more emphasis in the near future", observes Bruce R. Barrett, Office of Environmental Affairs, U.S. Department of Commerce, in a recent article published by the American Chemical Society in its publication, *Environmental Science and Technology*.

Primary authority for controlling toxic substances in the nation's waters is contained in the Federal Water Pollution Control Act Amendments (FWPCA). But there are eight other federal laws which also may be called upon to curb water contamination by toxic pollutants.

FWPCA addresses the problem by requiring the identification of toxic substances and developing discharge limitations for them; and also by regulation of hazardous substance spills, pretreatment standards for waste treatment plants, pollutant discharge permits, disposal of dredged and fill material and sewage sludge, ocean discharge criteria, and removal and disposal of in-place toxic pollutants as well as emergency powers through the courts to stop the discharge of pollutants.

The Marine Protection, Research, and Sanctuaries Act of 1972 controls the dumping of materials, including toxic substances, into the oceans. Federal regulatory authority to establish minimum standards for the quality of drinking water, after treatment, was provided by the Safe Drinking Water Act of 1974.

Two recent federal laws, the Resource Conservation and Recovery Act (1976) and the Toxic Substances Control Act (1976), provide federal control over the treatment, storage, and disposal of hazardous wastes and chemical substances that pose an unreasonable risk of injury to health or the environment.

The Hazardous Substances Transportation Act of 1974 regulates the commercial movement of hazardous materials, and the Federal Insecticide, Fungicide, and Rodenticide Act of 1972 asserts federal authority over pesticide use.

The Coast Guard regulates the bulk shipment of oil and hazardous substances by water under authority of the Ports and Waterways Safety Act of 1972 (also the Tanker Act and the Dangerous Cargo Act). The Atomic Energy Act of 1954 (as amended) regulates the discharge of radioactive wastes into the environment.

Mr. Barrett prepared his report while on assignment to the U.S. House of Representatives' Committee on Public Works. He concludes that the broad authorities in the federal laws noted above "offer few loopholes to potential spoilers of the environment."

.....*Lyle S. Raymond, Jr.*
Water Resources Information Specialist
Center for Environmental Research/Cooperative Extension, Cornell University

REGULATIONS DESIGNED TO REDUCE RUNOFF VELOCITY EFFECTIVE JULY 1

New regulations designed to reduce erosion to streambanks and channels downstream from any land-disturbing activity are now being enforced by the Land Quality Section of the N.C. Department of Natural Resources and Community Development. The intent of the new regulations developed by the Sediment Control Commission are to reduce the velocity of runoff from developing sites so that damage to streambanks and channels can be minimized. The new regulation requires that erosion and sedimentation control measures, structures, and devices be constructed to provide control from the calculated peak rates of runoff from a 10-year storm. Runoff rates are to be calculated using the procedures in the USDA, Soil Conservation Service's "National Engineering Field Manual for Conservation Practices" or other acceptable calculation procedures.

Some of the alternative techniques and ideas which have the potential to reduce runoff velocity are:

1. avoid increases in surface runoff volume and velocity by including measures to promote infiltration to compensate for increased runoff from areas rendered impervious,
2. avoid increases in stormwater discharge velocities by using vegetated or roughened swales and waterways in lieu of closed drains and high velocity paved sections,
3. provide energy dissipators at outlets of storm drainage facilities to reduce flow velocities at the point of discharge. These may range from simple rip-rapped sections to complex structures,
4. protect watercourses subject to accelerated erosion by improving cross sections and/or providing erosion-resistant lining.

Additional details on the new regulations may be obtained by writing to Mr. Harlan Britt, Land Quality Division of the Department of Natural Resources and Community Development, P.O. Box 27687, Raleigh, NC 27611. Telephone: 919/733-4574.

NEW INSTITUTE PUBLICATION

Proceedings of North Carolina Workshop on Management of Stormwater, Sedimentation and Flood Control in Urban Areas.

The North Carolina Workshop on Management of Stormwater, Sedimentation and Flood Control in Urban Areas was held January 5, 1978, in Apex, North Carolina. The objectives of the workshop were:

1. to develop an overview document on appropriate unified local and state control strategies for stormwater quality, sedimentation and erosion, urban drainage, and flood control;
2. to assess needs for research projects for new investigations leading to possible new legislation; and
3. To provide a mechanism for experience-sharing and coordination between persons working in the subject fields.

The workshop was devoted entirely to questions of administration and management, legislation, ordinances, and regulatory practices. It consisted of prepared presentations and directed discussions. These proceedings contain the papers presented and the workshop results, as well as the lists of task force members and attendees.

Copies of the proceedings are available ($6.00 per copy if prepaid or $8.00 per copy if billed) from the Water Resources Research Institute, 124 Riddick Building, NCSU, Raleigh, NC 27650.

YADKIN-PEE DEE STUDY AGREEMENT SIGNED

A Memorandum of Agreement to initiate the Yadkin-Pee Dee River Basin Level B Study has been signed by representatives of the North Carolina Department of Natural Resources and Community Development, South Carolina Water Resources Commission, and the U.S. Water Resources Council.

Headquarters for the two-year study will be in Winston-Salem, North Carolina, the largest city in the basin. State and federal officials interviewed five candidates for the study manager position on June 13.

The Level B study will seek solutions to resolve basinwide water resources problems over the next 15-25 years. Major focuses will include development of a water budget to deal with emerging water use conflicts, flood management, agricultural drainage, and industry and power plant siting.

UNC STUDENTS STUDY YADKIN RIVER

Under the direction of Maynard Hufschmidt and Bill Hill, faculty members of the Department of City and Regional Planning at UNC-Chapel Hill, a graduate class studied the Yadkin-Pee Dee River Basin during the spring semester. Their work culminated in a report entitled "Proposed Plan of Study for Level B Planning of the Yadkin-Pee Dee River Basin, North Carolina and South Carolina." Although this was an academic class exercise, the students undoubtedly uncovered considerable information of value for water planning in the Yadkin Basin. Information is available through Professor Maynard Hufschmidt at UNC-Chapel Hill.

ALTERNATIVE SEWAGE DISPOSAL SYSTEMS EXPLORED BY TASK FORCE

A special task force headed by Anne Taylor of the Department of Administration is examining some of the issues and problems relating to alternative sewage disposal in North Carolina. One of the issues facing the task force is how to assist counties now having sewage problems such as those experienced by Hyde County.

Hyde County is one of the many counties in the state that face problems with economical and environmentally sound handling of sewage in areas where current approaches are not working. The task force is exploring alternatives available to assist counties. In the Hyde County situation, a workshop was conducted on June 27 by Dr. Bobby Carlile, Soil Scientist from North Carolina State University, with support from the Sea Grant Program for the purpose of reviewing alternative approaches. One of the handouts for the workshop was a draft informational booklet prepared by Dr. Carlile on available alternatives.

It is expected that ideas and information gained from the workshop might be incorporated into a state-wide educational effort.

In a related program the Triangle J Regional Council of Governments 208 program includes testing alternative sewage disposal systems. An on-lot disposal study is expected to be completed by November 15, 1978. Results of that study are expected to be used in the Triangle J Region and will also have implications for the entire state.

STANLY COUNTY OFFICIALS SEEK DELEGATION OF 208 FUNDS FOR WASTEWATER DEMONSTRATION PROJECT

Stanly County Commissioners have proposed to the State 208 Policy Advisory Committee that the county be delegated authority and funds to carry out a wastewater management program. The funds would be used to demonstrate and manage alternative on-site technologies for handling wastewater.

Stanly County is faced with the problem of having a high percentage of its soils unsuitable for conventional septic tanks. It now has approximately a 25% refusal rate from the health department for new, conventional ground absorption systems.

Under the county-wide wastewater management system, efforts would be undertaken to rehabilitate existing systems and to mandate the most feasible wastewater treatment systems in terms of pollution control and cost-effectiveness for new developments and for existing, failing systems.

The 208 Policy Advisory Committee in its May 31 session expressed support for the project and asked that the State 208 staff continue efforts toward development of a final project proposal which could be considered by the committee.

WATER AUTHORITY PROPOSED

Establishment of an authority to furnish water to any North Carolina city or town at wholesale cost was proposed in Raleigh May 26 by House Speaker Carl J. Stewart, Jr. (see editorial, page 1).

The General Assembly should set up a commission to study the feasibility of creating a water authority, Stewart told a state-wide gathering of county commissioners. "Let us proceed thoughtfully in this matter--but let us proceed," the Gastonia attorney said.

Operating water treatment and distribution systems is beyond the financial reach of many local governments, he said. The proposed authority, with financing obtained from issuance of revenue bonds, would build the needed facilities and pipe the water to participating localities.

Stewart suggested that the main distribution line should run through the heart of Piedmont North Carolina. Feeder lines would extend in various directions off the main line. Cities and towns would tap into the lines for raw water in bulk at a break-even price, sparing them the expense of building and maintaining their own costly facilities.

PUBLIC MEETING ON CHOWAN HELD JUNE 28 IN WINTON

The Division of Environmental Management conducted a public meeting on June 28 at the Hertford County Courthouse in Winton to review the findings of the Chowan River Studies and to provide an update to the State's 208 program and Water Resource Framework Study.

Results of the Chowan River Studies were presented as part of the program and copies of a popularized report summarizing the studies were distributed to leaders in the area.

STEVENSON TO ASSIST WITH SAFE DRINKING WATER ACT TECHNICAL ASSISTANCE PROJECT

W. J. (Steve) Stevenson, formerly with the State Division of Health Services, has been selected to act as a consultant for an AWWA technical assistance

project for the Safe Drinking Water Act. Funded through the U.S. Environmental Protection Agency, the project is aimed at providing training for managers and operators of local water supply systems in regard to the requirements of the Safe Drinking Water Act and EPA regulations.

Stevenson will help coordinate training efforts in North Carolina. Eleven seminars have been scheduled for August and September at community colleges and technical institutes. Three 1/2-day sessions for managers and eight two-day sessions for operators are scheduled. It is expected that the programs will reach approximately 800 managers and operators.

REPORT SUMMARIZES INFORMATION ON NORTH CAROLINA PUBLIC WATER SUPPLIES

The U.S. Geological Survey, Department of the Interior, has recently released a report, *Public Water Supplies of North Carolina, a Summary of Water Sources, Use, Treatment, and Capacity of Water-Supply Systems*, by Larry T. Mann, Jr. The report, prepared in cooperation with the North Carolina Department of Natural Resources and Community Development, contains vital information on the *224 public water supply systems* in the state that serve 500 or more customers.

Population and economic growth in North Carolina are placing an ever-increasing stress upon the state's water resources. The inventory of existing public water supplies contained in this report presents data in a convenient form for water managers and planners. Information is given on population served; average and maximum daily water use; industrial use; source of supply, including the number of wells and the aquifers tapped; allowable draft of surface-water supplies; treatment; pumping capacity; water storage; and a summary of the chemical quality of finished water.

A limited number of reports are available at no charge upon request from the U.S. Geological Survey, P.O. Box 2857, Raleigh, North Carolina.

RESEARCH REVIEW SESSIONS SCHEDULED

Land Treatment - On July 12, two research projects on land treatment of wastewater are scheduled to be reviewed at 1:30 p.m. in the McKimmon Center on the NCSU campus. The projects are:

"Land Application of Industrial Wastes," by Dr. Michael R. Overcash and Dr. Philip W. Westerman, Department of Biological and Agricultural Engineering, North Carolina State University;

"Survival and Fate of Enteric Viruses in Soil Treatment Systems for Wastewater," by Dr. Mark D. Sobsey, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill.

Effects of Channelization - Several research projects and studies on the effects of stream channelization and nutrient cycling in floodplain swamps are to be reviewed on August 10 at the Ramada Inn on U.S. Highway 1, south of Raleigh near Apex, beginning at 8:30 a.m. The following presentations are included in the meeting:

"Effects of Stream Channelization on Water Quality of Floodplain Swamps in Eastern North Carolina," by Dr. Edward Kuenzler, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill;

"Effects of Stream Channelization on Bottomland and Swamp Ecosystems," Dr. T. E. Maki, Department of Forestry, North Carolina State University;

"U.S.G.S. Studies of Effects of Channelization on Wetland Hydrology," by Mr. Mike Winner, U.S. Geological Survey;

"Energetics and Nutrient Cycling in Floodplain Swamp Ecosystems," by Dr. Edward Kuenzler, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill;

"Nitrogen Cycling and Waste-Assimilative Capacity of Swamp Forest," by Dr. Mark Brinson, Department of Biology, East Carolina University;

"Stream Restoration as a Reasonable Alternative to Channelization," by Mr. Frank Barick, North Carolina Wildlife Commission.

USGS PRODUCES WATER RESOURCES FILM

The U.S. Geological Survey has produced a new film on water resource investigations. The film, "The Subject is Water," explains how the agency appraises the quantity, quality, distribution, and occurrence of surface and ground water.

Subjects discussed in the film include techniques for monitoring water supplies; droughts; flood-mapping; underground waste disposal problems; water

use and consumption; and the need for water to meet a variety of industrial, domestic, and agricultural demands.

The 28-minute color film was designed for use by educational, institutional, and other groups interested in environmental and natural resource activities. Copies of the film may be obtained on loan by contacting the USGS's Branch of Visual Services, 303 National Center, Reston, Virginia 22092.

NORTH CAROLINA WATER RESOURCES CONGRESS ORGANIZES

On May 19 the North Carolina Water Resources Congress met and approved Articles of Association. Although the group has been in existence for several years, this is the first formal act to institutionalize their activities.

In addition to adopting Articles of Association, a slate of officers was nominated by the nominating committee under Frank Wooten and elected by the attendees. The new officers are: chairman, Vernon Deal; vice-chairman, Lucius Pullen; past chairman, Luther Cromartie; secretary, George Pickett; treasurer, Tom Fahnstock; members at large, John McKenzie and Jack Cohoon.

A dues structure was adopted, and preparations for the Washington meeting to be held June 19 were discussed.

Persons interested in joining the congress are encouraged to contact the secretary, Colonel George Pickett, P.O. Box 12204, Raleigh NC 27605 in the Department of Natural Resources and Community Development.

SERC MEETING HELD IN JACKSON

The Southern Environmental Resources Conference (SERC) met in Jackson, Mississippi, May 30-June 2. There was a full program organized by Chairman Ward Edwards and Host Jack Pepper. The new chairman-elect is Henry Silberman of Maryland, who is assistant secretary for environmental resources.

The program included a keynote address by Assistant Secretary of Interior Guy Martin, a discussion of the coastal zone management program, and a description of the activities of the Corps of Engineers. Attendees were treated to a special event on Tuesday evening where Sam Thompson, one of the founders of the SERC, was honored at "Sam Thompson Appreciation Night."

There were panel discussions on the Clean Air Act, the Surface Mining Reclamation Act, the Resource Conservation and Recovery Act, and the Clean Water Act.

Mr. James Coulter, secretary for natural resources in Maryland, spoke at lunch on the new relationship between the states and the federal government and water management. Mr. William Harsch, deputy associate director of the OMB, spoke on the President's reorganization project as relates to natural resources.

Ten resolutions on environmental matters were introduced and approved by the attendees. The secretariat for the conference is the Southern Office of the Council of State Governments located in Atlanta. Anyone interested in inquiring about the meeting should contact them.

UNC-CH TRAINS FOREIGN WATER MANAGERS

The Department of Environmental Sciences and Engineering at UNC-CH has been training water managers from overseas for several years. Beginning in 1973, under the auspices of USAID and the United Nations (UNIDO) with the initiative of Professor Arthur C. Stern, the department embarked upon the International Program on the Environmental Aspects of Industrial Development (IPEAID). The project has three major elements:

1. A series of short courses on the Chapel Hill campus for officials from Asia, Africa, and Latin America, as well as a few from Europe who have responsibilities for stimulating industrial development or protecting the environment from the degradation that often accompanies such development.

2. Seminars in the developing countries. Where participants in these programs returned to their countries and felt a need for a seminar on the environmental aspects of industrial development, they were encouraged to invite UNC to assist in the conduct of such a seminar. As of this date, three such seminars have been conducted in Central America, and one each in Ghana, Egypt, and Kenya.

3. Preparation of resource material. In organizing the materials for these programs, resource material was compiled, and one of the outputs under the contract is to be a manual on the conduct of such seminars together with a four-volume set of references.

A separate but related project was the conduct of six two-week courses for AID engineers who are responsible for the conduct of development projects in the countries to which they are assigned, and in the administration of such projects in Washington. Some 120 engineers completed this program, and many of them have been of assistance in the conduct of our country's seminars.

COMMITTEE TO STUDY WATER CONSERVATION MEASURES

At its June 8 meeting, the Environmental Management Commission made the decision to appoint a committee to further develop a priority point system for water conservation measures. A public hearing was held on a proposed point system in April which would give priority points to grant applicants who adopted certain conservation measures. (See March *News*).

The hearing resulted in opposition on several points. The number of priority points for conservation was considered to be excessive. The proposed system would include 50 points for conservation consideration out of 150 total points. Opposition was also expressed to adoption of rate schedules which would increase rates based on the volume of water used. Other individuals saw the conservation measures as a deterrent to industrial development in the state.

A committee composed of representatives of the Department of Commerce, Department of Administration, Office of Citizen Affairs, North Carolina League of Municipalities, Local Government Commission were among the organizations which will be asked to appoint an individual to work with the Division of Environmental Management staff to develop details for a revised point system for water conservation.

SECOND SOUTHEASTERN GROUND WATER CONFERENCE TO BE HELD IN ATLANTA

Ground water professionals in the Southeast will have a technical conference in Atlanta, Georgia, October 4 and 5. An interstate ground water committee will develop the program for the conference, which is designed to disseminate information on technical problems.

Anyone interested in presenting a paper or who would like more details on the conference should contact David Swanson at the Geologic and Water Resources Division, 19 Martin Luther King Jr. Dr., S.W., Atlanta, Georgia 30334. Telephone: 404/656-3214.

DIRECTOR APPOINTED FOR NEVADA WATER CENTER

Dr. Peter Krenkel has been named executive director of the Water Resources Center of the Desert Research Institute. Krenkel, 48, received his bachelor of science and master's degrees in civil engineering at the University of California at Berkeley in 1956 and 1958 respectively. In 1960, he received his doctoral degree in sanitary engineering from the same university. For the past four years Krenkel has been serving as director for the division of environmental planning of the Tennessee Valley Authority.

CONFERENCES, SYMPOSIA, AND WORKSHOPS

Wastewater Renovation Symposium - The American Water Works Association Research Foundation is organizing an International Water Reuse Symposium under the principal sponsorship of the Office of Water Research and Technology (U.S. Department of the Interior) and U.S. Army Medical BioEngineering Research and Development Laboratory. The symposium will be held in Washington, D.C. March 25-29, 1979. With the theme of "Water Reuse - From Research to Application", it will be the first week-long effort devoted entirely to renovation and reuse of wastewaters. Subjects to be covered include pertinent case histories, new water recycling research, and practical community applications. Selected papers will emphasize innovative approaches, new or unreported system design, and performance data and future water reuse plans.

The program is directed to individuals from water/wastewater utilities, consulting firms, federal and state research/regulatory agencies, research divisions of manufacturers, universities, and other water research organizations. Interested authors are invited to submit qualification information and detailed 500-word abstracts of their proposed papers by September 15, 1978, to: Richard D. Heaton, Conference Organizing Committee, AWWA Research Foundation, 6666 W. Quincy Avenue, Denver, CO 80235. Telephone: 303/794-7711.

The Protection of Ground Water Quality - The two-week summer short course will be presented by the University of Delaware Water Resources Center on July 24 through August 4 at the University of Delaware, Newark, Delaware.

The objective of the course is to initially present a review and overview of groundwater hydrology and management with respect to the aquifier system, and then followed by in-depth presentations of problems relating to water quality and related environmental concerns. Specifics will include physical properties and components of the water system, solute balances, and construction of field equations describing movement and accumulation of water and pollutants in aquifiers without reference to any particular pollutant.

For further information or to register (by July 1, 1978) write to Conferences and Centers, Division of Continuing Education, University of Delaware, Newark, Delaware 19711.

State of Knowledge in Land Treatement of Wastewater - The International Symposium on Land Treatment of Wastewater will be held at Hanover, New Hampshire, August 20-25, 1978. The symposium

is sponsored by the U.S. Army Cold Regions Research and Engineering Laboratory with the cooperation of the U.S. Environmental Protection Agency; Science and Education Administration, Federal Research (U.S. Department of Agriculture); Office of the Surgeon General, U.S. Army; American Society of Agronomy; Crop Science Society of America; Soil Science Society of America; and the American Society of Agricultural Engineers.

The objectives of the symposium are to summarize the state of the knowledge related to the practical aspects of the treatment of wastewater by land application and to identify the suitable approaches for the design of such land treatment systems.

For further information contact: Symposium Coordinator, International Symposium on Land Treatment of Wastewater, CRREL, P.O. Box 282, Hanover, NH 03755.

Legal, Institutional and Social Aspects of Irrigation and Drainage and Water Resources Planning and Management - This conference, sponsored by the American Society of Civil Engineers and the Virginia Water Resources Research Center, will be held at the Virginia Polytechnic Institute and State University at Blacksburg, Virginia, on July 26-28, 1978.

Any questions or requests for additional information should be addressed to: Dr. William R. Walker, Director, Virginia Water Resources Research Center, 617 North Main Street, Blacksburg, VA 24060. Telephone: 703/951-5624.

Symposium Waterborne Transmission of Giardiasis - Sponsored by the Health Effects and the Municipal Environmental Research Laboratories, U.S. Environmental Protection Agency, the symposium will be held at the Netherland Hilton Hotel and at the EPA Environmental Research Center in Cincinnati, Ohio, on September 18-20, 1978.

The symposium will bring together scientists, engineers, and federal, state, and local public health officials for the purpose of determining the state-of-knowledge regarding the etiologic agent and the disease as they relate to water supplies.

For further information contact Ms. Kathy Burleigh, U.S. Environmental Protection Agency, 26 West St. Clair Street, Cincinnati, OH 45219.

Fourteenth American Water Resources Conference - The American Water Resources Association announces its fourteenth annual conference will be held at the Dutch Inn, Disney World Village, near Orlando, Florida, on November 6-10, 1978. Papers are invited related to any aspect of water resources planning, development, management, education, and information systems.

The AWRA also announces a Special National Symposium on Wetlands to be held in conjunction with the previously described annual conference at Disney World Village. The purpose of the symposium will be to review the state of the art of all technical aspects of wetlands.

For further information, write to the American Water Resources Association, St. Anthony Falls Hydraulic Laboratory, Mississippi River at 3rd Avenue, S.E., Minneapolis, MN 55414.

WATER RESOURCES CONDITIONS IN NORTH CAROLINA

Streamflow during the month was well above normal. Heavy scattered showers caused large rises on most streams during early May. Minor flooding of low-lying farmlands occurred throughout the central Piedmont on the 4-5th. Considerable flooding of lakefront property and recreational areas occurred at Kerr Reservoir (Roanoke River) when the lake level rose to 318.75 ft, which was only 0.1 ft lower than the maximum level set in 1975. At the end of May, flows in most streams had decreased to near-normal conditions.

Monthly-mean flows at the USGS index-gaging stations ranged from slightly above normal in the French Broad River at Asheville to over 5 times normal flow in the Neuse River near Clayton.

Ground-water levels rose in most areas during the month and were slightly above long-term averages for May.

.....U.S. Geological Survey

POSITIONS AVAILABLE

Research Scientist in the USDA-SEA-FR Hydrograph Laboratory in Beltsville, Maryland. Applicants must hold, as a minimum, a B.S. degree in agricultural or civil engineering, geology, or soil science. For details contact Edwin T. Engman, Chief, Hydrograph Laboratory, Beltsville Agricultural Research Center, Beltsville, MD 20705.

The Nebraska Water Resources Center has two positions as Water Scientists available. Qualified candidates must possess an M.S. degree in either agricultural or civil engineering or related field, or a B.S. degree plus experience related to job responsibilities. Send resume along with the names of three references to: Dr. Millard W. Hall, Director, Nebraska Water Resources Center, 310 Agricultural Hall, University of Nebraska, Lincoln, Nebraska 68583; or phone 402/472-3307.

Opportunity for Students - Several graduate fellowships and research assistantships for engineering

students are available at Rice University, Houston, Texas. Research opportunities are available in two areas: process engineering (microbial and chemical) and water resources engineering (hydrology and water quality modeling). Students with chemical, civil, sanitary, and mechanical engineering backgrounds are desired. Contact Dr. C. H. Ward, Department of Environmental Sciences and Engineering, Rice University, P.O. Box 1892, Houston, TX 77001. Telephone: 713/527-8101.

The American Public Works Association, a professional association of public works officials, is seeking to fill the position of Director of Research/General Manager of the APWA Research Foundation. Those interested in this position should write to Robert D. Bugher, Executive Director, American Public Works Association, 1313 E. 60th Street, Chicago, IL 60637, or telephone Rodney Fleming or Richard Sullivan at 312/947-2520.

The Division of Environmental Engineering at Utah State University is seeking a Visiting Professor or a professor on sabbatical leave to assist with teaching and research during the coming year. Responsibilities will include half-time teaching of graduate and some upper division undergraduate environmental engineering courses and half-time research on funded projects. A post-doctoral student would be considered. Interested persons should send their resumes to Dr. James H. Reynolds, Head, Division of Environmental Engineering, UMC 41, Utah State University, Logan, UT 84322. Telephone: 801/752-4100, Ext. 7744.

Assistant Director for Publications - Virginia Water Resources Research Center, Blacksburg, Virginia. The assistant director will be responsible for directing and implementing the total information dissemination program for the Center. Qualifications desired include a Master's or Ph.D. degree in journalism, with extensive experience and a proven work record in technical writing and some writing experience in the political, social, economic, and legal fields. Direct all inquiries to William R. Walker, Director, Water Resources Research Center, 617 North Main Street, Blacksburg, Virginia 24060.

WATER RESOURCES LEGISLATION IN THE CONGRESS

BILLS INTRODUCED

House

H.R. 12823 Water rights.

H.R. 12850 Fed. Water Proj. Rec. Act.

NEW PUBLIC LAWS

Senate

S. 1617 Program of ocean pollution research and monitoring.

NEW PUBLICATIONS RECEIVED BY THE INSTITUTE

(Residents of North Carolina may borrow these from the Institute for a two-week period. Where individual copies are desired, readers are encouraged to request copies from the organization issuing the publication. The addresses are provided by the *News* for this purpose).

Water Resources Planning

"Economic Impact of Water Quality on River Basin Management," 3/77, by O. J. Helweg, *et al.*, CA WRC, U. of CA, Davis, CA 95616. (05C)

"The Cost of Municipal Water Supply: A Case Study," (EPA-600/2-76-179), 8/76, by R. M. Clark, *et al.*, avail. from NTIS, Springfield, VA 22161. (03)

"Public Water Supplies of North Carolina - A Summary of Water Sources, Use, Treatment, and Capacity of Water-Supply Systems," 4/78, by L.T. Mann, Jr., USGS, P.O. Box 2857, Raleigh, NC 27602. (USGS)

"An Annotated Bibliography on River Recreation," 3/77, by D. H. Anderson, *et al.*, North Central Forest Experiment Station, 1922 Folwell Ave., St. Paul, MN 55108. (06)

"Fundamental Research Needs for Water and Wastewater Treatment Systems," 12/77, Ed. by J. H. Sherrard, avail. from NSF, Washington, DC 20550. (RN)

"Fundamental Research Needs for Water and Wastewater Treatment Systems," 2/78, by J. F. Andrews, *et al.*, NSF, Washington, DC 20550. (RN)

"Estimation of Residential Water Demand," (39), 10/77, by L. E. Danielson, Dept. of Economics & Business, NCSU, Raleigh, NC 27650. (03D)

"Water Requirements for Future Energy Production in California," 5/77, by J. A. Sathaye, *et al.*, avail. from NTIS, Springfield, VA 22161. (W&E)

"A Demonstration of Areawide Water Resources Planning," (EPA-600/5-78-006a), 4/78, by C. S. Spooner, *et al.*, avail. from NTIS, Springfield, VA 22161. (EPA/SES)

Water Quality Management

"Optimal Operation of Large Agricultural Watersheds with Water Quality Constraints," 4/78, by J. R. Williams, *et al.*, TX WRC, TX A&M U., College Station, TX 77843. (05B)

"Environmental Impact Resulting from Unconfined Animal Production," (EPA-600/2-78-046), 2/78, by J. W. D. Robbins, avail. from NTIS, Springfield, VA 22161. (05B)

"Third Annotated Bibliography on Biological Effects of Metals in Aquatic Environments (No. 1293-2246)," (EPA-600/3-78-005), 1/78, by R. Eisler, *et al.*, avail. from NTIS, Springfield, VA 22161. (05C)

"Conservation Districts and 208 Water Quality Management," 6/77, by W. B. Davey, avail. from EPA, Water Planning Div., 401 M St., SW, Washington, DC 20460. (208)

"Power Plant Cooling Water Chlorination in Northern California," (EPA-600/3-78-032), 3/78, by S. Hergott, *et al.*, avail. from NTIS, Springfield, VA 22161. (EPA/ERS)

"Handling and Disposal of Sludges from Combined Sewer Overflow Treatment Phase III-Treatability Studies," (EPA-600/2-77-053c), 12/77, by R. Osantowski, *et al.*, avail. from NTIS, Springfield, VA 22161. (05E)

"Lake Ray Hubbard Eutrophication Study, An Assessment of the Impact of Point and Nonpoint Sources on Water Quality in Lake Ray Hubbard," Vol. III, 4/78, avail. from Dallas Water Utilities, City Hall, Dallas, TX 75277. (05B)

"Conversion of Cattle Feedlot Manure to Ethylene and Ammonia Synthesis Gas," (EPA-600/2-78-026), 2/78, avail. from NTIS, Springfield, VA 22161. (05D)

"Ultimate Disposal of Beef Feedlot Wastes onto Land," (EPA-600/2-78-045), 3/78, by H. L. Manges, *et al.*, avail. from NTIS, Springfield, VA 22161. (05E)

"Freshwater Inflow and Its Effects on the Salinity and Biota of Shallow Lagoons," J. V. DeKreeke, *et al.*, avail. from Rosenstiel School of Marine and Atmospheric Science, U. of Miami, Miami, FL 33124. (02L)

"Pretreatment of the Combined Industrial-Domestic Wastewaters of Hagerstown, Maryland" (Vol. I), (EPA-600/2-78-043a), 3/78, by D. S. Kappe, avail. from NTIS, Springfield, VA 22161. (05D)

"Economic Analysis, Root Control, and Backwater Flow Control as Related to Infiltration/Inflow Control," (EPA-600/2-77-017A), 12/77, avail. from NTIS, Springfield, VA 22161. (04)

"Input/Output Models as Decision Criteria for Lake Restoration," 4/78, by P. D. Uttormark, *et al.*, WRC, U. of WI, Madison, WI 53703. (05 WQ Mgmt.)

"Risk Assessment and Health Effects of Land Application of Municipal Wastewater and Sludges," 12/77, Ed. by B. P. Sagik, *et al.*, avail. from The Center for Applied Research and Technology, The U. of TX at San Antonio, San Antonio, TX 78285. (05E)

"Techniques for Sampling and Analyzing the Marine Macrobenthos," (EPA-600/3-78-030), 3/78, by R. C. Swartz, avail. from NTIS, Springfield, VA 22161. (EPA/ERS)

"Estimates of Nonpoint Source Pollution by Mathematical Modeling," (43), 3/78, by R. H. McCuen, *et al.*, WRRC, U. of MD, College Park, MD 20742. (05B)

"Biological Availability of Pollutants to Marine Organisms," (EPA-600/2-78-035), 3/78, by J. R. Montgomery, *et al.*, avail. from NTIS, Springfield, VA 22161. (05C)

"Reaeration in a Turbulent Stream System," (#58), 3/78, by G. G. Ice, *et al.*, WRRI, OR St. U., Corvallis, OR 97331. (05G)

Water Quantity Management

"Potential Electricity Impacts of a 1978 California Drought," 1/78, by J. Sathaye, *et al.*, avail. from NTIS, US Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161. (E&W)

"Record Floods in Southwest Virginia April 1977," (IB #527), (5/77), by G. Denning, *et al.*, VA State Water Control Board & VA Office of Emergency Services, Richmond, VA 23219. (04A)

"Ground Water Manual," 1977, by USDI, avail. from Superintendent of Documents, USGPO, Washington, DC 20402. (02F)

"Idaho Falls Hydroelectric Project, Preliminary Project," 2/78, by International Engr. Co., Inc., avail. from NTIS, US Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161. (W&E)

"Irricab, Current Annotated Bibliography of Irrigation," (Vol. 1, #1), 10/76, Ed. by A. Mantell, avail. from International Irrigation Information Center, P.O. Box 8500, Ottowa, KIG 3H9, Canada. (03F)

"Assessing the Spatial Variability of Irrigation Water Applications," (EPA-600/2-78-041), 3/78, by D. Karmeli, avail. from NTIS, Springfield, VA 22161. (03F)

"Selected Irrigation Return Flow Quality Abstracts 1976 Sixth Annual Issue," (EPA-600/2-78-042), 3/78, by G. V. Skogerboe, *et al.*, avail. from NTIS, Springfield, VA 22161. (05B)

Miscellaneous

"Control of Animal Production Odors: The State-of-the-Art," (EPA-600/2-78-083), 4/78, by R. D. Kreis, avail. from NTIS, Springfield, VA 20460. (05A)

"The Fiscal Impact Handbook," 1978, by R. W. Burchell, *et al.*, The Center for Urban Policy Research, New Brunswick, NJ 08903, Price - $25.00. (06)

"Research Reports Supported by Office of Water Research and Technology Under the Water Resources Research Act of 1964," Rec'd. during the period 10/77-3/78), 4/78, avail. from US OWRT, WRSIC, Washington, DC 20240. (OWRT)

"A Research Strategy for Social Impact Assessment," 12/77, by A. B. Motz, avail. from U.S. Army Engineer Institute for Water Resources, Kingman Bldg., Fort Belvoir, VA 22060. (06B)

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