

WATER RESOURCES RESEARCH INTERESTS
IN THE
SENIOR COLLEGES AND UNIVERSITIES
OF
NORTH CAROLINA

An
Institute Report

May 1, 1968

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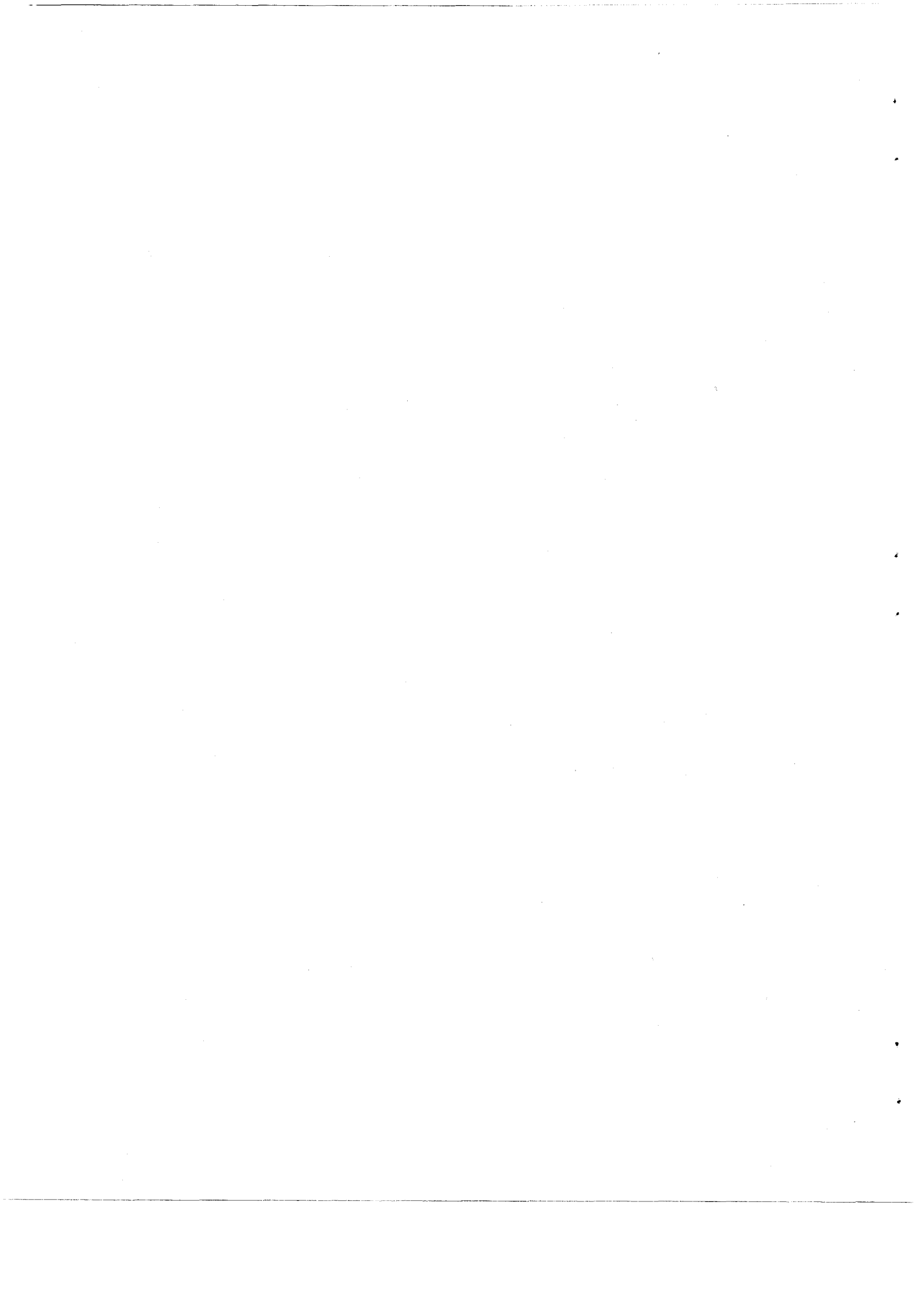
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- Mr. W. M. Zillgitt, Director, Southeastern Forest Experiment Station, Forest
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WATER RESOURCES RESEARCH INTERESTS
IN THE
SENIOR COLLEGES AND UNIVERSITIES OF NORTH CAROLINA

Interest in water resources research in the Senior Colleges and Universities of North Carolina heightened in 1968. Faculty members reporting interests in this field increased from 168 in 1967 to 202 in 1968, a 20 per cent rise. Of these, 130 are actively working in water-related research or are involved with research proposals. This is an addition of 16 per cent over the 110 faculty members reporting active research in 1967.

The sharpest change took place at North Carolina State University, where new programs dealing with industrial water use and waste control accounted for half the increased involvement.

By and large, the additional research interest came from industrial technology, engineering, and economics, with lesser increases from the biological and physical sciences and other sectors.

A summary of faculty water resources research interests by institution is presented on the following page.

Summary of Water Resources Research Interests
Senior Colleges and Universities of North Carolina

Faculty Members

<u>University</u>	<u>Reporting Water-Related Research Interest</u>		<u>Currently Involved in Water-Related Research*</u>	
	<u>Number</u>	<u>Increase over 1967</u>	<u>Number</u>	<u>Increase over 1967</u>
Consolidated University of North Carolina				
North Carolina State University at Raleigh	111	19	66	13
University of North Carolina at Chapel Hill	53	10	36	3
University of North Carolina at Charlotte	3	1	3	1
University of North Carolina at Greensboro	1	no change	1	no change
Duke University	18	- 1	17	1
East Carolina University	14	5	6	2
Guilford College	1	no change	1	no change
North Carolina College at Durham	1	no change	0	no change
Total	202	34	130	20

*Either conducting research
or awaiting action on research proposals

CONSOLIDATED UNIVERSITY OF NORTH CAROLINA

NORTH CAROLINA STATE UNIVERSITY AT RALEIGH

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO



NORTH CAROLINA STATE UNIVERSITY

AT RALEIGH



Consolidated University of North Carolina - North Carolina State University at Raleigh

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Ag. and Life Sc. ✓ <i>Dr. H. Brooks Jones</i>	Animal Science ✓ <i>Dr. I. R. Porterfield</i>	Dr. Albert J. Clawson ✓ ✓	Disposal of swine wastes
<i>BD of J. C. H. Jones</i>	<i>123 Falk</i> ✓	*Dr. James M. Leatherwood ✓ ✓	Utilization of fibrous wastes as animal nutrients
<i>Dr. J. C. H. Jones</i>	"	*Dr. Harold A. Ramsey ✓ ✓	Utilization of fibrous wastes as animal nutrients
<i>107 Falkner</i>	Botany ✓ <i>Dr. B. R. Duggle</i>	*Dr. Charles E. Anderson ✓ ✓	Aquatic plant response to changing water quality in estuaries
"	<i>2214 Gardner</i>	*Dr. Arthur W. Cooper ✓ ✓	Coastal ecology, salt marshes, forest ecology, and productivity of land plants
"	"	*Dr. Larry A. Whitford ✓ ✓	Floristics and ecology of algae
"	Crop Science ✓ <i>Dr. P. H. Haney</i>	Dr. Joseph C. Burns ✓ ✓	Growth of crops in stubble-mulch or sod-mulch planting as a means for control of soil erosion
"	<i>260 Williams</i>	Dr. Douglas S. Chamblee ✓ ✓	Moisture levels and plant management systems for optimal water efficiency and growth of forage species and the relative importance of moisture as a factor limiting establishment, growth and adaptation of major forage species
"	"	Dr. Frederick T. Corbin ✓ ✓	Influence of herbicides on growth of aquatic microorganisms, detoxication mechanisms enabling microorganisms to detoxify herbicides, and persistence of herbicides in reservoirs and lake bottom soils
"	"	*Dr. William B. Gilbert ✓ ✓	Water management for turf grasses and turf establishment and maintenance along highways
"	"	Dr. H. Douglas Gross ✓ ✓	Water Management for hay, pasture, and ensilage crops

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Ag. and Life Sc.	Crop Science ✓ <i>Dr. P. H. Kanney ✓</i>	Dr. R. C. Long ✓	Relationships between water use and plant metabolism
"	"	*Dr. Jerome B. Weber ✓	The chemistry and biological availability of pesticides and other organic chemicals applied to soils
"	"	Dr. A. D. Worsham ✓	Water conservation and pesticide pollution
"	Economics ✓ <i>Dr. W. D. Loussaint ✓</i>	*Dr. William M. Crosswhite ✓ <i>Teach. Com.</i>	Water use and waste control in food processing industry
"	" <i>216 Patterson</i>	Dr. Edward W. Erickson ✓	General
"	"	Prof. Cleon Harrell ✓	Benefit-cost analysis and economics of recreation
"	"	Dr. Dale M. Hoover ✓ <i>Teach. Com.</i>	Analysis of effects of irrigation on land values and aggregate output, and relationship between crowding and quality as related to demand for recreation
"	"	*Mr. John Macon ✓	Industrial water use and waste control
"	"	*Dr. James A. Seagraves ✓	Industrial water use and waste control
"	"	Dr. Ernst W. Swanson ✓	Water resource economics
"	Entomology ✓ <i>Dr. Ernest Hodges ✓</i>	Dr. Richard C. Axtell ✓	Biology and control of Diptera associated with man including flies and gnats breeding in water and waste treatment plants, midges and gnats of impounded waters, and mosquitoes associated with drainage systems
"	" <i>Dr. K. L. Knight ✓</i> <i>230 Gardner ✓</i>	Dr. Walter C. Dauterman ✓	Structure-activity relationship of organo-phosphate insecticides

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Ag. and Life Sc.	Entomology	*Dr. Frank E. Guthrie ✓	Mechanisms of pesticide toxicity ✓
"	<i>Dr. Ernest Hodgeson</i>	Dr. Robert L. Raab ✓	Faunistic studies of aquatic insects in North Carolina ✓
"	"	*Dr. Thomas J. Sheets (Dir., Pesticides Laboratory) ✓	Water quality as affected by agricultural land runoff with emphasis on pesticides ✓
"	Food Science	*Mr. Roy E. Carawan ✓	Water use and waste control in food processing industry ✓
"	<i>Dr. W. M. Roberts</i> <i>124 Polk</i>	✓	✓
"	Plant Pathology ✓	*Dr. Ellis B. Cowling ✓	Enzymatic degradation of lignin by micro-organisms and development of useful products from pulp and paper wastes ✓
"	<i>Dr. D. E. Ellis</i> <i>2518 Gardner</i>	Dr. T. Kent Kirk ✓	Enzymatic degradation of lignin by micro-organisms and development of useful products from pulp and paper wastes ✓
"	Soil Science	*Dr. S. W. Buol ✓	Relationship of soil and water ✓
"	<i>Dr. R. J. Craker</i>	*Dr. James W. Gilliam ✓	Release of fertilizer nitrogen and phosphorus to ground and surface waters ✓
"	<i>222 Wilhois</i>	*Dr. J. Fulton Lutz ✓	Water conservation, storage and movement in soils, availability to plants, contamination by agricultural chemicals (herbicides, pesticides, fertilizers, etc.) ✓
"	"	*Dr. Charles B. McCants ✓	Infiltration, percolation, leaching of mineral elements and soil moisture regimes ✓
"	"	*Mr. Charles D. Sopher ✓	Interactions between rainfall distribution and plant growth ✓
"	"	*Dr. W. G. Woltz ✓	Infiltration, percolation, leaching of mineral elements and soil moisture regimes ✓

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Ag. and Life Sc.	Soil Science <i>Dr. R. J. McClain</i>	*Dr. William W. Woodhouse, Jr. <i>Leach Comm.</i>	Effect of vegetation on water movement in and over soils, water losses, stabilization against erosion and water use by plants
"	Zoology	*Dr. David E. Davis (Head of Department)	Animal populations associated with land disposal of municipal and industrial wastes
"	<i>2123 Hatteras</i>	*Dr. William W. Hassler (Dir., Hatteras Laboratory)	Life history studies and population dynamics of marine and estuarine fishes
"	"	*Dr. F. Eugene Hester (Leader Coop. Fisheries Unit)	Fishery and waterfowl biology
"	"	*Dr. John E. Hobbie	General limnology, heterotrophy in fresh and marine waters, new methods of studying heterotrophy
"	"	*Dr. Donald B. Horton (Dir., Pamlico Marine Laboratory)	Marine and estuarine ecology

Note: The following members of the professional staff, Radiobiological Laboratory, Bureau of Commercial Fisheries, Fish and Wildlife Service, Department of the Interior, Beaufort, N. C. hold adjunct appointments on the Department of Zoology Faculty:

		*Dr. Joseph W. Angelovic	Marine and estuarine ecology
		*Dr. Thomas W. Duke	
		*Dr. Theodore R. Rice	
		*Dr. Richard B. Williams	
		*Dr. Douglas A. Wolfe	
Engineering and Ag. and Life Sc.	Biological & Agricultural Engineering	*Prof. David H. Howells (Dir., Water Resources Research Institute)	Water supply and pollution control
"	"	*Dr. George J. Kriz <i>Leach Comm.</i>	Moisture movement through porous media in the saturated and unsaturated states

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Engineering and Ag. and Life Sc.	Biological & Agricultural Engineering	*Mr. Ronald E. Sneed ✓✓	Water requirements of plants and water quality as related to home water systems
"	<i>Dr. F. J. Hasler</i>	*Dr. Cliff R. Willey ✓✓	Water movement in soil, drainage, and water use
"	<i>100 Bio. Eng. Bldg.</i>	*Dr. Ralph E. Williamson ✓✓	Drainage requirements of plants
"	<i>Agri. Eng. Bldg.</i>	*Dr. Edward H. Wiser <i>Sea Com.</i> ✓✓	Hydrology
Engineering	Chemical Engineering	Dr. L. G. Austin ✓✓	Research in the area of powder science using radioisotope tracers
<i>U. R. E. Fader</i>	<i>Dr. J. K. Ferrell</i>	*Dr. Harold Hopfenberg ✓✓	Membrane separations including reverse osmosis, ultrafiltration, and pervaporation applied to ocean, brackish, waste, by-product, and biological water solutions
<i>229 Reddick</i>	<i>113 Reddick</i>	Dr. David B. Marsland ✓✓	Desalination, industrial water pollution, and waste-water reuse
"	"	*Dr. Vivian T. Stannett ✓✓	Membrane separations including reverse osmosis, ultrafiltration, and pervaporation applied to ocean, brackish, waste, by-product, and biological water solutions
"	Civil Engineering	*Dr. Michael Amein ✓✓	Stream flow, river basin planning, rain-fall runoff, and wave motion
"	<i>Dr. D. L. Dean</i>	*Dr. Newton V. Colston, Jr. ✓✓	Water supply and pollution control
"	<i>208 Mann</i>	(Appointment on or about June 1, 1968) <i>208 Mann</i>	
"	"	*Dr. William S. Galler ✓✓	Application of systems analysis to water problems

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Engineering	Civil Engineering <i>Mr. D. F. Dean</i>	*Dr. A. I. Kashef	Flow toward wells, seepage through dams, drainage problems, soil mechanics, and ground water hydrology
"	"	*Dr. Jay Langfelder	Coastal erosion
"	"	*Prof. Charles Smallwood, Jr. <i>Engr. Com.</i>	Water supply and pollution control
"	Engineering Research <i>Mr. Henry B. Smith</i>	*Mr. Robert D. Kauffman (Mineral Research Laboratory)	Recovery of by-products from feldspar plant tailings
"	<i>Dr. Stoops</i> <i>127 Suddick</i>	Mr. W. T. McDaniel (Chief Engineer Minerals Research Laboratory)	Utilization of mining and ore processing wastes
"	<i>Dr. Stoops</i>	*Mr. Immo H. Redeker <i>Minerals Res. Lab.</i>	Recovery of by-products from feldspar plant tailings
"	"	*Miss Frances M. Richardson	Removal of radioactive contaminants from water
"	Mechanical & Aerospace Engineering <i>Dr. Robert W. Smith</i>	Prof. Jesse S. Doolittle	Saline water conversion, particularly in the field of thermodynamics and heat transfer
"	<i>211 Broughton</i>	*Dr. Francis J. Hale	Dynamic analysis and control system design of desalinization processes
"	"	Dr. M. Necati Ozisik	Heat and mass transfer problems, diffusion problems related to removal of aerosols or particulates from fluid streams and research associated with the effectiveness of heat exchanges in association with saline water conversion
"	Nuclear Engineering	Prof. James R. Bohannon, Jr.	Radioisotope tracing

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Engineering	Nuclear Engineering	Dr. Thomas S. Elleman ✓✓	Radioactivity in the environment
"	" <i>5 Burlington Lab</i>	Dr. Robin P. Gardner ✓✓	Research in the area of powder science using radioisotope and tracers
Forest Resources	Forestry	*Dr. T. Ewald Maki (Head of Department) ✓✓ <i>Dept. Comg</i>	Forest influences (humus type-infiltration interrelationships); stand density and composition--evapotranspiration and production
"	" <i>16 1/2 Kilgore</i>	Dr. Thomas O. Perry ✓✓	Nitrogen cycling in forest ecosystems
"	Hardwood Research Program	*Prof. R. L. McElwee (Dir. Hardwood Research) ✓✓ <i>253 Kilgore</i>	Influence of changing water regimes resulting from alteration of natural water cycles on reproduction, development, growth and harvesting of bottomland hardwood timber
"	Recreation Resources Administration	*Prof. Gordon A. Hammon ✓✓	Water oriented recreation resources
"	" <i>Child House</i>	Prof. Thomas I. Hines (Head of Department) ✓✓	Human and economic values related to recreational use of water resources
"	"	Prof. Charles C. Stott ✓✓	Water-based recreation facilities
"	Wood Science & Technology	*Dr. Wyn Brown ✓✓	Biological degradation and chemical modification of lignin
"	" <i>166 Kilgore</i>	*Dr. Eric L. Ellwood (Head of Department) ✓✓	Processing and manufacturing of pulp and paper and the physics and chemistry of wood utilization
"	"	Prof. R. G. Hitchings ✓✓	Influence of pulp-making processes on mill effluents as related to waste treatment

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Forest Resources	Wood Science & Technology	*Dr. Knut Kringstad	High yield pulping and waste reduction aspects
"	<i>Dr. Eric Ellwood</i>	*Prof. Charles N. Rogers	Water use and waste control in pulp and paper industry
"	"	*Dr. Alfred J. Stamm	Pulp mill and chemical plant effluents
Liberal Arts <i>Dr. Fred V. Cahill</i>	Politics	Dr. William J. Block (Head of Department)	Rural zoning-including flood-plain zoning
<i>162 Harrison</i>	Social Studies	Prof. James C. Wallace	Socio-political aspects of water resources management
"	<i>Dr. G. A. Gullett</i> <i>144 Harrison</i> Sociology & Anthropology	Dr. Selz C. Mayo (Head of Department)	Sociological aspects of water resources management
Physical Sci. & Applied Math.	Chemistry	*Dr. Lawrence H. Bowen	Behavior of water-soluble organic and organometallic compounds in aqueous solution. "Thermodynamics of aqueous solution of Group V metal-organic salts," and "Mossbauer effect in frozen aqueous solutions."
<i>Dr. Arthur C. Menius</i>	<i>Dr. Z. Zimmerman</i> <i>Huges</i>	*Dr. Forrest C. Hentz, Jr.	Hydrolytic polymerization of metallic cations
<i>115 General</i> <i>John Bldg.</i>	<i>108 Withers</i>	Dr. George H. Wahl, Jr.	Reactions in liquid bromine and nuclear magnetic resonance, investigations of hydrogen bonding
"	Experimental Statistics	Dr. Anthony F. Bartholomay	Mathematical models for biological systems
"	"	Dr. R. J. Hader	Statistical theory and methodology as related to industry and engineering applications
"	"	Mr. H. K. Hamann	Statistical theory and methodology as related to biological applications

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Physical Sci. & Applied Math.	Experimental Statistics ✓	*Dr. Don W. Hayne ✓	Sampling, aquatic biology, pollution biology, and fishery biology
"	<i>On General Lab Bldg</i>	Dr. A. H. E. Grandage ✓	Statistical theory and methodology as related to industry and engineering applications
"	"	Dr. H. L. Lucas, Jr. ✓	Mathematical description, mathematical modeling, and experimental design for dynamic systems with biological components
"	"	Dr. A. R. Manson ✓	Model building for spread of pollution, design of experiments for monitoring pollution levels, and related areas
"	"	*Mr. Robert E. Mason ✓	Quantitative ecology, biostatistics, and adaptation of biological problems to the computer
"	"	Dr. R. P. Geckler ✓	Quantitative ecology
"	"	Dr. David D. Mason (Head of Department) ✓	Design and analysis of experiments and surveys relating to the effect of soil characteristics, topography, and management to the hydrology of an area
"	"	Dr. R. J. Monroe ✓	Statistical consultant in estuarine biology research and to bacteriologists engaged in water pollution studies
"	"	*Dr. L. A. Nelson ✓	Design and analysis of experiments and surveys relating to the effect of soil characteristics, topography, and management factors on the hydrology of an area
"	"	*Dr. C. H. Proctor ✓	Sample design and analysis to survey recreation activities and resources
"	"	Dr. Charles Quesenberry ✓	Application of non-parametrics theory to water resources problems

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Physical Sci. & Applied Math.	Experimental Statistics	Dr. R. G. D. Steel	Statistical theory and methodology as related to biological applications
"	<i>Dr. D. A. Mason</i>	*Mr. David W. Turner	Statistics as applied to fisheries problems
"	"	Dr. H. R. van der Vaart	Mathematical models for representing physical and biological processes
"	"	Dr. J. A. Warren	Statistical theory and methodology as related to biological applications
"	"	Dr. O. Wesler	Mathematical models for representing physical and biological processes
"	Geo-Sciences	*Mr. Albert Hardy (State Climatologist)	Relationships of precipitation, temperature, evaporation, evapotranspiration, soil moisture, and soil temperature to agricultural and industrial production, human health and welfare
"	<i>Dr. C. J. Luth</i>	*Dr. John M. Parker. III	Occurrence of ground water in metamorphic and igneous rocks
"	<i>109 Page Hall</i>	*Dr. Charles W. Welby	Ground water occurrence and management and legal and economic aspects of ground water use
Textiles	Textile Chemistry	*Prof. Kenneth S. Campbell	Measurement and acceptability of color in determining water quality
<i>Dr. David W. Chaney</i>		*Dr. H. Y. Jennings	Recovery of warp sizes
"	<i>101 Nelson</i>	<i>David Clark Lab</i> Prof. Henry A. Rutherford (Head of Department)	Water use and waste control in textile industry
"	Textile Technology	*Prof. James H. Dornburg	Water use and waste control in textile industry
	<i>Prof. D. S. Hembry</i> <i>103 - C Nelson</i>		

*Either conducting research or awaiting action on research proposals

UNIVERSITY OF NORTH CAROLINA

AT CHAPEL HILL



Consolidated University of North Carolina - University of North Carolina at Chapel Hill

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Arts and Sciences	Botany	Dr. C. Ritchie Bell	Variation and evolution in certain aquatic and marsh or bog plants
"	"	Dr. Aris Domnas	Salt water adaptation in fungi with respect to enzymes and proteins
"	"	*Dr. Max H. Hommersand	Metabolism, respiration, and photosynthesis of algae
"	"	*Dr. William J. Koch	Aquatic fungi in all aspects
"	"	Dr. Helmut Leith	Water use by terrestrial vegetation
"	"	*Dr. J. Frank McCormick	Marine and fresh water ecology, particularly pollution, algae and fungi studies
"	"	*Dr. Clyde J. Umphlett	Aquatic fungi, ecology of fresh water flagellated forms, and aquatic fungus parasites of mosquito larvae
"	Chemistry	*Dr. Richard P. Buck	Membrane electro chemistry and trace analysis by spark source mass spectrometry
"	"	*Dr. Royce W. Murray	Basic research on adsorption of metal ions and complexes at metal surfaces
"	"	Dr. Charles N. Reilley	Electrochemical determination of dissolved oxygen
"	"	*Dr. Henry G. Thomas	Adsorption and motion of ions on and through soil minerals
"	Geology	*Dr. Roy Ingram	Sediments in inshore waters along the Atlantic coastline
"	"	*Dr. Paul C. Ragland	Trace element composition of water

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Arts and Sciences	Geology	*Dr. Daniel A. Textoris	Solution of mineral matter, precipitation in sedimentary rocks and influence on permeability and porosity
"	"	Dr. Joel Watkins	Application of reflection and refraction seismology to ground water problems
"	Zoology	*Dr. Charles E. Jenner	Invertebrate zoology and aquatic ecology
"	"	*Dr. Howard T. Odum <i>Dept Comm.</i>	Ecological networks, tropical and disturbed systems
"	"	*Dr. Allen E. Stiven (Acting Head of Department)	Aquatic population systems
Graduate	City & Regional Planning	*Dr. Maynard M. Hufschmidt <i>Dept Comm.</i>	Water resources planning, policy and administration, and system analysis techniques
"	"	Mr. Hugh W. Knox <i>Dept Comm.</i>	Impact of economic development on water resources
"	Curriculum in Recreation Administration	Dr. H. Douglas Sessoms	Outdoor recreation patterns, relationship of socioeconomic characteristics to leisure use, and motivating factors in outdoor recreation participation
"	Political Science <i>89-1135</i> <i>Prof. Frederic Cleveland, Hd.</i>	*Dr. Diel S. Wright <i>Dept Comm.</i>	Intergovernmental relations and public administration
Institute of Marine Sciences	-----	*Dr. A. F. Chestnut (Director of Institute)	Marine and estuarine ecology
"		*Dr. William E. Fahy	Ecology of marine and brackish water fishes. Experimental study of influence of environmental factors on skeleton of developing marine fishes
"		*Dr. Jan J. Kohlmeyer	Marine fungi

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Institute of Marine Sciences	-----	*Prof. Hugh J. Porter	Marine and estuarine mollusca
"	"	*Dr. Austin B. Williams	Systematics and ecology of Decapod Crustacea
"	"	*Dr. Frank J. Schwartz	Systematics zoogeography and ecology of fishes and turtles
"	"	*Dr. William J. Woods	Hydrography and plankton of western Pamlico Sound, and productivity-nutrient cycles in Bouge Sound
Institute of Government	-----	*Prof. Milton S. Heath, Jr.	Water resources law and administration, legislation, and municipal government
"	"	*Prof. Warren J. Wicker	Public control and provision of water and sewerage services, with emphasis on governmental organization, management, finance, and intergovernmental relations
Institute for Research in Social Science	Center for Urban and Regional Studies	*Dr. Edward J. Kaiser	Impact of water and sewerage policies on urban development; residential development utilizing water resources as a part of the environment
"	"	*Prof. Shirley F. Weiss	Water as a key factor in urban and regional land use, misuse, and reuse
Public Health	Environmental Sciences and Engineering	Prof. James C. Brown	Water treatment, waste treatment, public water supply and waste disposal in developing countries
"	Dr. Cohen	Mr. Richard F. Cole	Sanitary engineering unit processes

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Public Health	Environmental Sciences and Engineering	*Dr. J. Donald Johnson ✓	Water chemistry, chlorination, disinfection, fluoridation, flotation tertiary treatment processes, estuarine pollution, and ionic interaction in saline waters ✓
"	"	*Dr. Edward J. Kuenzler ✓	Nutrient cycling, ecology of phytoplankton, and estuarine ecology ✓
"	"	Mr. Donald T. Lauria ✓	Application of systems analysis techniques to water supply planning in developing countries ✓
"	"	*Dr. James C. Lamb, III ✓ <i>Tech Comm</i>	Water and waste treatment processes, stream pollution, and water resources economics ✓
"	"	*Dr. Robert A. Mah ✓	Microbiology of anaerobic sludge fermentation ✓
"	"	*Mr. Frederick E. McJunkin ✓	Water supply and pollution control ✓
"	"	*Dr. David H. Moreau ✓ (Arriving summer 1968)	Systems analysis in water quality management ✓
"	"	*Dr. Daniel A. Okun ✓ (Head of Department)	Water supply and pollution control for developing countries ✓
"	"	*Dr. Charles R. O'Melia ✓ <i>Dr. O'Melia</i>	Water supply and waste water treatment ✓
"	"	*Dr. Jabbar K. Sherwani ✓	Systems analysis approach to water resource, hydrology, and economics of water quality management ✓
"	"	Dr. S. J. Weidenkopf ✓	Inactivation of viruses in water ✓
"	"	*Dr. Charles M. Weiss ✓ <i>Tech Comm</i>	Aquatic ecology, effects of pollution on the aquatic environment, water resources and water quality, and detection and assessment of organic constituents in water ✓
"	Biostatistics ✓	Dr. Elizabeth J. Coulter ✓	Demography, economic factors in health, vital statistic studies of environment in relation to long-term illness ✓

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Public Health	Biostatistics ✓	Dr. R. C. Elston ✓	Statistical methods in bioassay
"	"	Dr. James E. Grizzle ✓	Consultation with research workers on design of experiments and analysis of data
"	"	Dr. P. A. Lachenbruch ✓	Simulation and data analysis
"	"	Dr. Dana Quade ✓	Statistical inference, especially non-parametric
"	"	Dr. Harry Smith, Jr. (Head of Department) ✓	Application of spectral analysis to water quality management

*Either conducting research or awaiting action on research proposals



UNIVERSITY OF NORTH CAROLINA

AT CHARLOTTE



Consolidated University of North Carolina - University of North Carolina at Charlotte

PO Box 12665 - zip 28205

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
-----	Chemistry ✓✓	*Dr. James R. Koppers ✓✓	Diffusion of water through organic and inorganic membranes with applications to the reverse osmosis process for reclaiming saline water
	Geography ✓✓	*Mr. James W. Clay ✓✓	Quality, quantity and utilization of available water resources in the Mexican portion of the Colorado River Delta
	Mechanical Engineering ✓✓	*Dr. Fred J. Dunkerley ✓✓	Water treatment for commercial boilers as related to boiler scale formation and other boiler tube corrosion phenomena

*Either conducting research or awaiting action on research proposals



UNIVERSITY OF NORTH CAROLINA

AT GREENSBORO



<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
-----	Chemistry ✓	*Dr. Henry L. Anderson, II ✓	Thermodynamics of aqueous electrolyte solutions ✓

*Either conducting research or awaiting action on research proposals



DUKE UNIVERSITY



Duke University

27706

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Graduate School of Arts and Sciences	Botany	*Dr. T. W. Johnson, Jr.	Aquatic fungi: marine, estuarine, and fresh water
"	"	*Dr. Paul J. Kramer	Effects of water stress on plant growth and plant processes
"	"	*Dr. Richard B. Searles	Biology of algae, particularly the benthic marine algae
"	Civil Engineering	*Dr. Edward H. Bryan (Advisory Comm)	Water pollution, waste water characteriza- tion, water quality, and waste water treat- ment. Effect of urban development on quality of storm water runoff
"	Economics	*Dr. Thomas H. Naylor	Influence of water resources on economic growth in the Southeastern United States
"	Political Science	Dr. Richard H. Leach	Intergovernmental relations in water development, regulation and use
"	Zoology- Marine Laboratory	*Dr. C. G. Bookhout (Dir., Oceanographic Program)	Rearing estuarine and oceanic invertebrates in relation to environmental factors and planktonic studies of estuarine and oceanic crustacea
"	"	*Dr. John D. Costlow, Jr. (Dir., Marine Laboratory)	Environmental effects on crustacean de- velopment and endocrine mechanisms of crustacean development

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Graduate School of Arts and Sciences	Zoology-- Marine Laboratory	*Dr. Wanda S. Hunter	Marine parasitology
"	"	*Dr. Susan Huntsman	Organic compounds in sea water
"	"	*Dr. Daniel A. Livingston	Limnology and geochemistry of the hydrosphere
"	"	*Dr. Ian McIntire	Marine geology
"	"	*Dr. Umnsteinn Stefansson	Chemical oceanography - particularly nutrients and water masses analysis
"	"	*Dr. F. John Vernberg	Physiological ecology of marine animals
"	"	*Dr. Winena B. Vernberg	Physiological ecology of marine animals
Forestry	-----	*Dr. Kenneth R. Knoerr	Forest hydrology - particularly the re- lationship between the energy balance and vegetation work use
"		*Dr. Charles W. Ralston	Effects of forest land use practices on water quality and nutrient cycling of forested water sheds
"		*Dr. Frank W. Woods	Water movement in ecosystems and uptake and movement through plants

*Either conducting research or awaiting action on research proposals

EAST CAROLINA UNIVERSITY



East Carolina University

27834

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Arts & Sciences	Biology	*Mr. Francis P. Belcik	Parasitic estuarine, and marine copepods, especially on invertebrates
"	"	*Dr. Vincent J. Bellis	Algal ecology and algae as indicators of water quality
"	"	*Dr. J. G. Boyette	Ecology and natural history of native vertebrates including aquatic and marine forms
"	"	*Dr. Graham J. Davis <i>Head of Department</i>	Factors affecting growth and floral initiation in <u>Proserpinaca Palustris</u> (mermaid weed)
"	"	*Dr. Takeru Ito	Oxidative phosphorylation in autotrophs of acid mine water
"	"	*Dr. <i>Linda</i> Lynda Little	Organic nitrogen metabolism of algae, industrial waste treatment
"	"	*Dr. Talmage E. Lundy	Digenetic trematodes infecting the genus <u>Larus</u>
"	"	*Dr. James S. McDaniel	Digenetic trematode parasites of molluska
"	"	*Dr. Susan J. McDaniel	Limnology
"	"	*Dr. Edward P. Ryan	Ecological biology of aquatic invertebrates
"	Geology	Dr. C. Q. Brown	Sediment transport and geochemistry
"	"	Dr. Jean Lowry	Ground water
"	"	Dr. S. R. Riggs	Ground water as related to stratigraphic variables
"	Geography	Dr. Daniel Stillwell	Recreation use of water resources and biogeography

*Either conducting research or awaiting action on research proposals



GUILFORD COLLEGE



Guilford College

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
-----	Biology	*Dr. Robert R. Bryden (Head of Department) (see card)	Limnology of ponds and streams

*Either conducting research or awaiting action on research proposal



NORTH CAROLINA COLLEGE AT DURHAM



North Carolina College at Durham

<u>School</u>	<u>Department</u>	<u>Name</u>	<u>Water Related Research Interest</u>
Arts & Sciences ✓	Geography	Dr. Theodore R. Speigner ✓ (Head of Department)	Small watershed legislation and water conservation ✓

