

MINUTES OF  
BUDGET AND CONTROL BOARD  
MEETING

September 6, 1989

STATE OF SOUTH CAROLINA  
**State Budget and Control Board**  
OFFICE OF THE EXECUTIVE DIRECTOR

CARROLL A. CAMPBELL, JR., CHAIRMAN  
GOVERNOR

GRADY L. PATTERSON, JR.  
STATE TREASURER

EARLE E. MORRIS, JR.  
COMPTROLLER GENERAL

P.O. BOX 1244  
COLUMBIA, SOUTH CAROLINA 29211  
(803) 734-2320

JAMES M. WADDELL, JR.  
CHAIRMAN, SENATE FINANCE COMMITTEE

ROBERT N. McLELLAN  
CHAIRMAN, WAYS AND MEANS COMMITTEE

JESSE A. COLES, JR., Ph.D.  
EXECUTIVE DIRECTOR

September 18, 1989

MEMORANDUM

TO: Budget and Control Board Division Directors  
FROM: William A. McInnis, Deputy Executive Director *WAM*  
SUBJECT: Summary of Board Actions at September 6, 1989, Meeting

This listing of actions is not the minutes of the referenced meeting. It is an unofficial (meaning it has not been approved by the Board) summary of the Board actions taken at that meeting. The minutes of the meeting are presented in a separate, much more detailed document which becomes official when approved by the Board at a subsequent meeting.

The Board heard budget requests for 1990-91 from the following agencies:

Forestry Commission  
Wildlife and Marine Resources Department  
Sea Grant Consortium  
Coastal Council  
Department of Agriculture  
Land Resources Conservation Commission  
Water Resources Commission  
Clemson University - Public Service Activities  
Department of Parks, Recreation and Tourism  
State Development Board  
State Election Commission  
Office of the Adjutant General

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02533



MINUTES OF STATE BUDGET AND CONTROL BOARD MEETING  
SEPTEMBER 6, 1989 (Budget Hearings) 8:55 A. M.

The Budget and Control Board met at about 8:55 a.m. on Wednesday, September 6, 1989, in Room 105 of the Gressette Building, with the following members in attendance:

Governor Carroll A. Campbell, Jr., Chairman;  
Mr. Grady L. Patterson, Jr., State Treasurer;  
Mr. Earle E. Morris, Jr., Comptroller General;  
Senator James M. Waddell, Jr., Chairman, Senate Finance Committee;  
Representative Robert N. McLellan, Chairman, House Ways & Means Committee.

Assistant Executive Director Charles H. Smith and other Board staff were present.

**Continuation of 1990-91 Budget Preparation Process: Natural Resources**

A panel discussion on the status of beach management research and practices opened the session.

Panelists, who were introduced by John N. McMillan, Director of the Governor's Division of Energy, Agriculture and Natural Resources, included:

Dr. Timothy W. Kana, Coastal Science and Engineering, Inc.;  
Chris G. Holmes, The McNair Law Firm; and  
William Marscher, Mayor Pro-Tem, Hilton Head Town Council

A second panel discussion on natural resource planning and management followed. Panelists, introduced by Mr. McMillan, included:

Dr. David J. Cowen, University of South Carolina;  
Dr. James C. Hite, Clemson University; and  
Margaret Davidson, SC Sea Grant Consortium.

**Agency Budget Requests**

After the panel discussions, the Board heard requests from the following agencies:

Forestry Commission  
Wildlife and Marine Resources Department  
Sea Grant Consortium  
Coastal Council

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Minutes of State Budget and Control Board Meeting  
Regular Session -- September 6, 1989 -- Page 2

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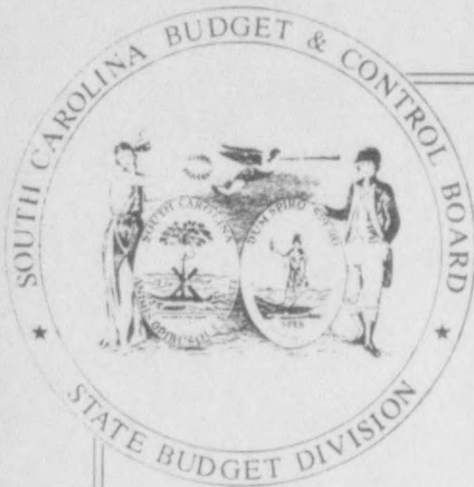
The morning session was recessed at about 12:00 noon. The hearings were reconvened at about 2:00 p.m. and the Board then heard requests from the following agencies:

Department of Agriculture  
Land Resources Conservation Commission  
Water Resources Commission  
Clemson University - Public Service Activities  
Department of Parks, Recreation and Tourism  
State Development Board  
State Election Commission  
Office of the Adjutant General

Information relating to these matters has been retained in these files and is identified as Exhibit 1.

[Secretary's Note: In compliance with Code §30-4-80, public notice of this meeting was given to news media representatives and others on numerous occasions during the months of June, July and August as a part of the future meeting item included in the agenda of regular Board meetings held then.]

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## EXHIBIT

SEP 6 1989

NCL 1

STATE BUDGET & CONTROL BOARD

# BUDGET HEARINGS

Fiscal Year 1990-91

September 6, 1989

C2536



PRESENTERS FOR AGENCIES APPEARING  
WEDNESDAY, SEPTEMBER 6, 1989

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FORESTRY COMMISSION

Boris Hurlbutt, Chairman  
Bill Baughman, Vice Chairman  
Jack Gould, Acting State Forester

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WILDLIFE & MARINE RESOURCES DEPARTMENT

Dr. James Timmerman, Executive Director  
J. Benny Reeves, Director, Administrative Services

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SEA GRANT CONSORTIUM

Dr. Harry M. Lightsey, Jr., Chairman and College of Charleston President  
Margaret A. Davidson, Executive Director

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COASTAL COUNCIL

Senator John C. Hayes, Chairman  
Dr. H. Wayne Beam, Executive Director

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DEPARTMENT OF AGRICULTURE

D. Leslie Tindal, Commissioner

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LAND RESOURCES CONSERVATION COMMISSION

D. Cary Chamblee, Deputy Director-Administration

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WATER RESOURCES COMMISSION

Alfred H. "Freddy" Vang, Executive Director

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CLEMSON-PUBLIC SERVICE ACTIVITIES

Dr. Milton B. Wise, Vice President for Agriculture & Natural Resources

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DEPARTMENT OF PARKS, RECREATION & TOURISM

William J. Sigmon, Sr., Chairman  
Fred P. Brinkman, Executive Director

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DEVELOPMENT BOARD

Richard E. Greer, Chairman  
Wayne L. Sterling, Executive Director  
John C. Hankinson, Jr., Deputy Director

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ELECTION COMMISSION

James B. Ellisor, Executive Director  
Ann C. Wolfe, Finance Director

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ADJUTANT GENERAL

General T. Eston Marchant

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C2538

State Budget & Control Board

**FY 1990-91  
BUDGET REQUEST HEARINGS**

**NATURAL RESOURCES**

Wednesday, September 6, 1989

**C2539**

## **FY 1990-91 BUDGET HEARINGS**

**Wednesday, September 6, 1989**

8:55 a.m. - 10:30 a.m.    **Natural Resources Panel Discussions**

### **Panel I: The Status of Beach Management Research and Practices**

#### **Beach Erosion in South Carolina: Geological Trends and Implications for Future Management Practices**

Dr. Timothy W. Kana, Senior Principal, Coastal Science and Engineering, Inc.

#### **Beach Management Act Litigation: Lessons for State Policy-Makers**

Chris G. Holmes, McNair Law Firm

**Moderator:** William Marscher, Mayor Pro-Tem,  
Hilton Head Town Council

### **Panel II: Natural Resource Planning and Management**

#### **Geographic Information Systems as a Planning and Management Tool**

Dr. David J. Cowen, Director, Humanities and Social Sciences Computer Laboratory, University of South Carolina

#### **Impact of Environmental Trends on Economic Development Planning**

Dr. James C. Hite, Senior Fellow, Thurmond Institute;  
Alumni Professor of Agricultural Economics, Clemson University

**Moderator:** Margaret Davidson, Director, South Carolina Sea Grant Consortium

**Introductions:** John N. McMillan

**C2540**

## FY 1990-91 BUDGET HEARINGS

Wednesday, September 6, 1989

### Agency Hearings:

10:30 - 11:00	Forestry Hearing
11:00 - 11:30	Wildlife & Marine Resources Hearing
11:30 - 11:45	Sea Grant Consortium Hearing
11:45 - 12:00	Coastal Council Hearing
2:00 - 2:30	Agriculture Hearing
2:30 - 2:45	Land Resources Hearing
2:45 - 3:00	Water Resources Hearing
3:00 - 3:30	Clemson-PSA Hearing
3:30 - 4:00	Parks, Recreation & Tourism Hearing
4:00 - 4:30	Development Board Hearing
4:30 - 4:45	Election Commission Hearing
4:45 - 5:00	Adjutant General Hearing

C2541



BASE BUDGET INFORMATION  
STATE FORESTRY COMMISSION

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TOTAL APPROPRIATION BASE FOR 1989-90	16,549,516
ANNUALIZE EMP CONT INC	96,343
ANNUALIZATION OF BASE PAY INCREASE	115,586

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90-91 BASE	16,761,445
TOTAL STATE FTE'S	( 593.54)

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# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME FORESTRY COMMISSION AGENCY CODE P-12

## REQUESTED INCREASES

<b>PRIORITY #</b> 1	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding to replace old worn out, unreliable mechanized fire suppression and 2-way radio equipment essential to the forest fire protection program and provide for processing and fabrication of new equipment.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 0.00	STATE FUNDS 1,140,188	TOTAL FUNDS 1,140,188
<b>PRIORITY #</b> 2	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding to increase the operating budget at the district and county levels of the Forestry Commission. This increase in contractual, supply and gasoline funds is needed to do the forest fire suppression job.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 0.00	STATE FUNDS 221,000	TOTAL FUNDS 221,000
<b>PRIORITY #</b> 3	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding to restore the air tanker program that was lost last year and to increase the flight time in aerial detection. Aerial delivery of retardants is effective in initial response to fires in high value planted stands.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 0.00	STATE FUNDS 136,000	TOTAL FUNDS 136,000
<b>PRIORITY #</b> 4	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding to hire seven trained foresters to allow the Forestry Commission to provide the technical expertise, coordination and leadership in the area of forest wetlands management and water quality enhancement.			
STATE FUNDED POSITIONS 7.00	TOTAL POSITIONS 7.00	STATE FUNDS 316,533	TOTAL FUNDS 316,533
<b>PRIORITY #</b> 5	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding for an approved upgrade of county personnel in the fire warden and tower attendant positions. This should improve the skills of our wardens, increase our service to the public and improve morale.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 0.00	STATE FUNDS 163,509	TOTAL FUNDS 163,509
<b>PRIORITY #</b> 6	<b>PROGRAM NAME:</b> Forest Landowner Assistance		
Provide funding to allow Forestry Commission personnel working in forest fire suppression and law enforcement to be placed under the S. C. Police Officers Retirement System.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 0.00	STATE FUNDS 214,712	TOTAL FUNDS 214,712

# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME FORESTRY COMMISSION AGENCY CODE P-12

## REQUESTED INCREASES

PRIORITY # <u>7</u>	PROGRAM NAME: <u>Forest Landowner Assistance</u>		
Provide funding to hire three fire warden/mechanics to assist in the forest fire suppression and equipment repair workload at Camden, Florence and Kingstree District Repair Shops.			
STATE FUNDED POSITIONS <u>3.00</u>	TOTAL POSITIONS <u>3.00</u>	STATE FUNDS <u>87,294</u>	TOTAL FUNDS <u>87,294</u>
PRIORITY # <u>8</u>	PROGRAM NAME: <u>Forest Landowner Assistance</u>		
Provide funding for two urban foresters to work with homeowners and governmental agencies in the care and protection of trees in urban areas.			
STATE FUNDED POSITIONS <u>2.00</u>	TOTAL POSITIONS <u>2.00</u>	STATE FUNDS <u>103,442</u>	TOTAL FUNDS <u>103,442</u>
PRIORITY # <u>9</u>	PROGRAM NAME: <u>Forest Landowner Assistance</u>		
Provide funding to allow the Forestry Commission to hire part-time help to form a two man fire crew, tractor operator and a helper, during the peak of the fire season.			
STATE FUNDED POSITIONS <u>185 Temp.</u>	TOTAL POSITIONS <u>185 Temp.</u>	STATE FUNDS <u>321,752</u>	TOTAL FUNDS <u>321,752</u>
PRIORITY # <u>10</u>	PROGRAM NAME: <u>Administration</u>		
Provide funding for an Internal Auditor to enhance the agency's ability to operate utilizing acceptable accounting procedures and safeguard its assets.			
STATE FUNDED POSITIONS <u>1.00</u>	TOTAL POSITIONS <u>1.00</u>	STATE FUNDS <u>33,522</u>	TOTAL FUNDS <u>33,522</u>
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
Agency Totals			
STATE FUNDED POSITIONS <u>13</u> <u>185 Temp.</u>	TOTAL POSITIONS <u>13</u> <u>185 Temp.</u>	STATE FUNDS <u>2,737,952</u>	TOTAL FUNDS <u>2,737,952</u>



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME FORESTRY COMMISSION AGENCY CODE P-12

## REQUESTED INCREASES

PRIORITY # <u>1</u>	PROGRAM NAME: <u>Administration</u>		
Provide funding to replace health hazardous asbestos from Headquarters Administration Building and Sign Shop.			
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS <u>420,000</u>	TOTAL FUNDS <u>420,000</u>
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS	TOTAL FUNDS
AGENCY TOTALS:			
STATE FUNDED POSITIONS <u>N/A</u>	TOTAL POSITIONS <u>N/A</u>	STATE FUNDS <u>420,000</u>	TOTAL FUNDS <u>420,000</u>



# EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

## BASE BUDGET INFORMATION WILDLIFE & MARINE RESOURCES DEPARTMENT

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TOTAL APPROPRIATION BASE FOR 1989-90	19,180,115
ANNUALIZE EMP CONT INC	73,370
ANNUALIZATION OF BASE PAY INCREASE	118,912

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90-91 BASE	19,372,397
TOTAL STATE FTE'S	( 439.00)

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02546

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME Wildlife and Marine Resources Department AGENCY CODE P24

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME:		Agency-Wide	
Funding is requested to restore portion of vacancy factor of 4.7%, complete restoration of 1988-89 three percent (3%) base reduction and funding for worker's compensation premium shortage.					
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS	457,133
				TOTAL FUNDS	533,633
PRIORITY #	2	PROGRAM NAME:		Agency-Wide	
To provide funding for salary adjustments for Biologists, aides and technicians as recommended by Human Resources Management.					
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS	168,613
				TOTAL FUNDS	410,002
PRIORITY #	3	PROGRAM NAME:		Fisheries	
To provide funding for support personnel for technical assistance and to continue operation of the fish lift at the St. Stephens Dam on the Santee River.					
STATE FUNDED POSITIONS	3.00	TOTAL POSITIONS	3.00	STATE FUNDS	373,685
				TOTAL FUNDS	305,285
PRIORITY #	4	PROGRAM NAME:		Game Management	
To provide funding for a small game biologist, secretary and operating funds to offset cost of living raises, reclassifications, reallocations and to support needed agriculture supplies and equipment for waterfowl and game management.					
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00	STATE FUNDS	336,884
				TOTAL FUNDS	336,884
PRIORITY #	5	PROGRAM NAME:		Conservation, Education & Communication	
To provide funding for the conservation education programs known as Project WILD.					
STATE FUNDED POSITIONS	3.00	TOTAL POSITIONS	3.00	STATE FUNDS	98,863
				TOTAL FUNDS	98,863
PRIORITY #	6	PROGRAM NAME:		Law Enforcement	
To provide funding for eight (8) conservation officer positions, one (1) clerical position and support for rent of office space and aircraft insurance.					
STATE FUNDED POSITIONS	9.00	TOTAL POSITIONS	9.00	STATE FUNDS	850,793
				TOTAL FUNDS	850,793

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME Wildlife and Marine Resources Department AGENCY CODE P24

## REQUESTED INCREASES

PRIORITY #	7	PROGRAM NAME:		Marine Resources Administration	
To provide funding for minority intern program and maintenance of the entire Marine Division complex at Fort Johnson.					
STATE FUNDED POSITIONS	3.00	TOTAL POSITIONS	3.00	STATE FUNDS	232,953
				TOTAL FUNDS	232,953
PRIORITY #	8	PROGRAM NAME:		Research Institute	
To provide funding for personnel to assess the effects of pollutants on coastal and marine organisms.					
STATE FUNDED POSITIONS	1.00	TOTAL POSITIONS	3.00	STATE FUNDS	65,000
				TOTAL FUNDS	145,000
PRIORITY #	9	PROGRAM NAME:		Office of Fisheries Management	
To provide funding to strengthen the Division's ability to manage the State's commercial and recreational fisheries in the area north of McClellanville to Little River.					
STATE FUNDED POSITIONS	4.00	TOTAL POSITIONS	4.00	STATE FUNDS	121,804
				TOTAL FUNDS	90,100
PRIORITY #	10	PROGRAM NAME:		Mariculture	
To provide funding for a maintenance position to support the four million dollar facility and operating funds for research supplies and replacement of lab equipment.					
STATE FUNDED POSITIONS	1.00	TOTAL POSITIONS	1.00	STATE FUNDS	76,418
				TOTAL FUNDS	76,418
PRIORITY #	11	PROGRAM NAME:		Magazine	
To increase funding for production of the S.C. Wildlife Magazine. These funds will be generated by higher subscription fees and remitted to the General Fund of the State, and then appropriated back to the Magazine.					
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS	91,000
				TOTAL FUNDS	91,000
PRIORITY #	12	PROGRAM NAME:		Heritage Trust	
To provide support funding to aid Biologist in technical assistance to landowners as it pertains to endangered species and Heritage Trust Preserves.					
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS	75,000
				TOTAL FUNDS	75,000



# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME Wildlife and Marine Resources Department AGENCY CODE P24

## REQUESTED INCREASES

PRIORITY #	13	PROGRAM NAME:		Bonneau Center
To provide funds for supplies, equipment and contractual services in stocking programs for striped bass in Lakes Murray, Greenwood, Wateree, Hartwell and Thurmond.				
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	25,000
			TOTAL FUNDS	25,000
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	
			TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	
			TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	
			TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	
			TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS	STATE FUNDS	
			TOTAL FUNDS	
AGENCY TOTALS:				
STATE FUNDED POSITIONS	26.00	TOTAL POSITIONS	28.00	STATE FUNDS
				2,973,146
			TOTAL FUNDS	3,270,931



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME WILDLIFE & MARINE RESOURCES AGENCY CODE 024

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Freshwater Fisheries		
To provide funds for match to construct a cool water fish hatchery.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 400,000
				TOTAL FUNDS 800,000
PRIORITY #	2	PROGRAM NAME: Research Institute		
To provide funds to upgrade and replace aging, obsolete, and broken research equipment for fisheries, and maintenance programs.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 175,000
				TOTAL FUNDS 175,000
PRIORITY #	3	PROGRAM NAME: Mariculture Center		
Funding is requested to stabilize the Mariculture Center's waterfront, and to provide substantial erosion control at the bluff.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 60,000
				TOTAL FUNDS 60,000
PRIORITY #	4	PROGRAM NAME: Game		
The Game Program is requesting equipment funding for a track-hoe to be used in construction and maintenance of impoundment dike systems.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 140,000
				TOTAL FUNDS 140,000
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
AGENCY TOTALS:				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 775,000
				TOTAL FUNDS 1,175,000

BASE BUDGET INFORMATION  
SEA GRANT CONSORTIUM

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TOTAL APPROPRIATION BASE FOR 1989-90	509,541
ANNUALIZE EMP CONT INC	1,571
ANNUALIZATION OF BASE PAY INCREASE	2,955

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90-91 BASE	514,067
TOTAL STATE FTE'S	( 9.00)

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# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Sea Grant Consortium AGENCY CODE P26

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Administration	
In a small agency a vacant position can cause great hardship. If the vacancy factor adjustment is not reinstated, the Consortium will not be able to fill a critical position. Travel funds presently available are inadequate and the reduction magnifies the problem.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 6,341	TOTAL FUNDS 6,341
PRIORITY #	2	PROGRAM NAME: Administration	
An increase in operating expenses is necessary due to rising costs. Without these increases the agency will not be able to function. These costs are rent, supplies janitorial & security services, computer maintenance contracts, insurance and telephone.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 20,613	TOTAL FUNDS 20,613
PRIORITY #	3	PROGRAM NAME: Administration	
As the Consortium has doubled its level of activities, several key positions have experienced increased responsibilities. Human Resource Management and the Blue Ribbon Committee established by the Board of Directors have recommended in-grade increases & reclassifications.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 39,043	TOTAL FUNDS 39,043
PRIORITY #	4	PROGRAM NAME: Administration	
Several federal agencies will be placing "realtime" monitoring instruments in the coastal waters of S.C. A minimal state match is required: these funds will go towards instrument maintenance costs.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 100,000	TOTAL FUNDS 100,000
PRIORITY #	5	PROGRAM NAME: Administration	
The S.C. Joint Legislative Committee on aquaculture has endorsed the establishment of a mechanism to focus & coordinate aquaculture research and technology transfer programs in the State and develop needed areas of expertise. The Carolina Aquaculture Research and Education Program will provide this multi-institutional mechanism.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 500,000	TOTAL FUNDS 500,000
PRIORITY #	6	PROGRAM NAME: Administration	
The creation of a Center for Coastal Hazards Reduction will serve to coordinate and develop state research institutions' capabilities to work with the private sector & reduce disaster-related costs of building in high hazard environments.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 250,000	TOTAL FUNDS 250,000
AGENCY TOTALS:			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 915,997	TOTAL FUNDS 915,997



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Sea Grant Consortium

AGENCY CODE P26

## REQUESTED INCREASES

PRIORITY # 1		PROGRAM NAME: Administration	
At present the B-20 computer system has reached operating capacity and we are using a borrowed 20 Meg disk. This disk must be returned shortly because it has been sold by Unisys. When this happens system-wide crashes will occur frequently and work stoppages and schedule interruptions will be the result.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	\$40,611
		TOTAL FUNDS	\$40,611
PRIORITY # 2		PROGRAM NAME: Administration	
The Consortium has been working to conduct the first ever comprehensive census and survey of colonial waterbirds and shorebirds for the entire coast of South Carolina. Such a guidebook would contribute substantially to efforts to increase economic activity in the Santee Delta and Ashepoo-Combahee-Edisto Basin.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	\$65,000
		TOTAL FUNDS	\$65,000
PRIORITY # 3		PROGRAM NAME: Administration	
A stream flow model for the Savannah River is being developed by the S.C. Water Resources Comm. This effort needs to be coupled with a simultaneous effort which reviews the literature and characteristics of impacts associated with riverine flows. This one time commitment will provide matching funds for acquiring federal funds.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	\$100,000
		TOTAL FUNDS	\$100,000
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
AGENCY TOTALS:			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	\$205,611
		TOTAL FUNDS	\$205,611

BASE BUDGET INFORMATION  
COASTAL COUNCIL

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TOTAL APPROPRIATION BASE FOR 1989-90	1,453,913
ANNUALIZE EMP CONT INC	2,928
ANNUALIZATION OF BASE PAY INCREASE	4,952

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90-91 BASE	1,461,793
TOTAL STATE FTE'S	( 21.00)

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# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S. C. Coastal Council AGENCY CODE P25

## REQUESTED INCREASES

<b>PRIORITY #</b> 1	<b>PROGRAM NAME:</b> Administration and Operations		
Provide funds to cover existing staff for FY 90-91. No new positions requested. Funds will cover upgrades approved by Division of Human Resource Management.			
STATE FUNDED POSITIONS 0	TOTAL POSITIONS 0	STATE FUNDS 74,282	TOTAL FUNDS 74,282
<b>PRIORITY #</b> 2	<b>PROGRAM NAME:</b> Administration and Operations		
Provide funds for total rent for Myrtle Beach (\$12,383) and Beaufort (\$15,886) offices. Reduction in federal funding necessitates this switch to State funding.			
STATE FUNDED POSITIONS 0	TOTAL POSITIONS 0	STATE FUNDS 28,269	TOTAL FUNDS 28,269
<b>PRIORITY #</b> 3	<b>PROGRAM NAME:</b> Administration and Operations		
To provide for wide distribution of S.C. Beach Management Plan, local Beach Management Plans, and implementing rules and regulations by allowing needed printing and dissemination.			
STATE FUNDED POSITIONS 0	TOTAL POSITIONS 0	STATE FUNDS 30,000	TOTAL FUNDS 30,000
<b>PRIORITY #</b> 4	<b>PROGRAM NAME:</b> Administration and Operations		
To accomplish reanalysis of erosion rates for all S.C. beaches. Erosion rate determines actual setback distance for structures from the baseline along the coast. Rates need to be determined using consistent methodology.			
STATE FUNDED POSITIONS 0	TOTAL POSITIONS 0	STATE FUNDS 80,000	TOTAL FUNDS 80,000
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>AGENCY TOTALS:</b>			
STATE FUNDED POSITIONS 0	TOTAL POSITIONS 0	STATE FUNDS 212,551	TOTAL FUNDS 212,551



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME South Carolina Coastal Council AGENCY CODE P 25

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Administration and Operations	
To provide needed information to adequately structure renourishment projects. Sand budgets established using profiles to the -18 ft offshore contour will identify sand sources at South Carolina's 14 major coastal inlets. New monum-			
entation will also be required.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	200,000
		TOTAL FUNDS	200,000
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	
		TOTAL FUNDS	
AGENCY TOTALS:			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
		STATE FUNDS	200,000
		TOTAL FUNDS	200,000

BASE BUDGET INFORMATION  
DEPARTMENT OF AGRICULTURE

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TOTAL APPROPRIATION BASE FOR 1989-90	6,425,741
ANNUALIZE EMP CONT INC	26,235
ANNUALIZATION OF BASE PAY INCREASE	40,091

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90-91 BASE	6,492,067
TOTAL STATE FTE'S	( 159.00)

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C2557

# 1 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME Agriculture

AGENCY CODE P16

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Consumer Services	
To provide operating funds to maintain programs present level.			
STATE FUNDED POSITIONS	.00	TOTAL POSITIONS	.00
STATE FUNDS	31,000.00	TOTAL FUNDS	31,000.00
PRIORITY #	2	PROGRAM NAME: Laboratory Services	
Provide technical and rountine assistance in Laboratory Services.			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	66,000.00	TOTAL FUNDS	66,000.00
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
<b>AGENCY TOTALS:</b>			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	97,000.00	TOTAL FUNDS	97,000.00



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME Agriculture AGENCY CODE P16

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Non-Recurring Appropriations	
Expansion of marketing facilities at the Columbia State Farmers Market			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	920,000.00	TOTAL FUNDS	920,000.00
PRIORITY #	2	PROGRAM NAME: Marketing Services	
To replace two (2) over used vehicles.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	24,000.00	TOTAL FUNDS	24,000.00
PRIORITY #	3	PROGRAM NAME: Marketing General	
To provide training for small farmers using video technology			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	15,000.00	TOTAL FUNDS	15,000.00
PRIORITY #	4	PROGRAM NAME: Consumer Services	
To provide non-recurring funds to obtain mobile LP gas prover, computer for Metrology Laboratory and electronic balances for field personnel.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	68,500.00	TOTAL FUNDS	68,500.00
PRIORITY #	5	PROGRAM NAME: Consumer Services	
To replace two diesel heavy scales test trucks and bodies.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	250,000.00	TOTAL FUNDS	250,000.00
PRIORITY #	6	PROGRAM NAME: Administration	
To produce audio visual aids and specialized brochures that are designed, and tailored in their content for the agribusiness market.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	15,000.00	TOTAL FUNDS	15,000.00
AGENCY TOTALS:			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	1,292,500.00	TOTAL FUNDS	1,292,500.00

# EXHIBIT

SEP 6 1989

NO. 1

BASE BUDGET INFORMATION

STATE BUDGET & CONTROL BOARD

STATE LAND RESOURCES CONSERVATION COMMISSION

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TOTAL APPROPRIATION BASE FOR 1989-90	3,102,330
ANNUALIZE EMP CONT INC	10,924
ANNUALIZATION OF BASE PAY INCREASE	19,539

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90-91 BASE	3,132,793
TOTAL STATE FTE'S	( 65.60)

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C2560

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Land Resources Commission AGENCY CODE 208

## REQUESTED INCREASES

<b>PRIORITY #</b>	<b>1</b>	<b>PROGRAM NAME:</b> Administration		
To provide for an Attorney III for environmental law enforcement and legal services for the entire agency. Position, including salary and fringe, \$39,344 and other expenses \$6,500.				
STATE FUNDED POSITIONS	1.00	TOTAL POSITIONS	1.00	STATE FUNDS \$ 45,844
				TOTAL FUNDS \$ 45,844
<b>PRIORITY #</b>	<b>2</b>	<b>PROGRAM NAME:</b> Mining and Reclamation		
To provide an Hydrologist, Engineer, Biologist, and Administrative Specialist B for enforcement and administration of the S.C. Mining Act. Personnel costs are \$126,943 and other expenses \$26,700.				
STATE FUNDED POSITIONS	4.00	TOTAL POSITIONS	4.00	STATE FUNDS \$153,643
				TOTAL FUNDS \$153,643
<b>PRIORITY #</b>	<b>3</b>	<b>PROGRAM NAME:</b> Conservation Districts		
To provide additional conservation engineers for South Carolina's 46 conservation districts. Salary and fringe \$268,792; other expenses \$69,400.				
STATE FUNDED POSITIONS	8.00	TOTAL POSITIONS	8.00	STATE FUNDS \$338,192
				TOTAL FUNDS \$338,192
<b>PRIORITY #</b>	<b>4</b>	<b>PROGRAM NAME:</b> Soils, Planning and Resource Information		
To provide soil scientist at \$36,111, including fringe, plus \$5,000 for other expenses and \$80,000 for state's share of soil mapping and computerization of data for the entire state to match \$80,000 Federal.				
STATE FUNDED POSITIONS	1.00	TOTAL POSITIONS	2.00	STATE FUNDS \$121,111
				TOTAL FUNDS \$201,111
<b>PRIORITY #</b>	<b>5</b>	<b>PROGRAM NAME:</b> Soils, Planning and Resource Information		
To provide for a wetlands mapping specialist for mapping and updating wetlands maps for South Carolina. Salary \$36,111 including fringe; all other expenses \$5,000.				
STATE FUNDED POSITIONS	1.00	TOTAL POSITIONS	1.00	STATE FUNDS \$ 41,111
				TOTAL FUNDS \$41,111
<b>PRIORITY #</b>	<b>6</b>	<b>PROGRAM NAME:</b> Erosion, Sediment and Stormwater Management/Dams Safety		
To provide funding for 4 stormwater/dams safety engineers for assisting with flood control, stormwater management, sediment control, and dam safety. Will be located in field offices. Personnel costs: \$144,444; other expenses \$20,000.				
STATE FUNDED POSITIONS	4.00	TOTAL POSITIONS	4.00	STATE FUNDS \$164,444
				TOTAL FUNDS \$164,444



# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Land Resources Commission AGENCY CODE PO8

## REQUESTED INCREASES

PRIORITY #	7	PROGRAM NAME: Conservation Districts		
To provide travel reimbursement for 230 conservation district commissioners. Average increase of \$47 per commissioner.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$ 11,000
				TOTAL FUNDS \$ 11,000
PRIORITY #	8	PROGRAM NAME: Dams and Reservoirs Safety		
To provide replacement vehicle for Dams and Reservoirs Safety Division.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$ 15,000
				TOTAL FUNDS \$15,000
PRIORITY #	9	PROGRAM NAME: Conservation Districts		
Special Item: Aid to Conservation Districts. This increase of \$7,473 per district added to the existing appropriation will provide each district with \$15,000.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$343,751
				TOTAL FUNDS \$343,751
PRIORITY #	10	PROGRAM NAME: Conservation Districts		
To provide for salary increases for Conservation Districts Division staff.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$ 32,951
				TOTAL FUNDS \$ 32,951
PRIORITY #	11	PROGRAM NAME: Soils, Planning and Resource Information		
To provide for salary increases for Soils, Planning and Resources Information Division staff.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$ 12,500
				TOTAL FUNDS \$ 12,500
PRIORITY #	12	PROGRAM NAME: Administration		
To provide additional travel funds for inflation increases in travel and the two (2) new additional members of the Land Resources Commission representing the Senate and the House of Representatives.				
STATE FUNDED POSITIONS	0.00	TOTAL POSITIONS	0.00	STATE FUNDS \$ 5,000
				TOTAL FUNDS \$ 5,000

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Land Resources Commission AGENCY CODE P08

## REQUESTED INCREASES

PRIORITY # 13	PROGRAM NAME: Administration		
To provide for an increase of .40 FTE and funding for health insurance for Administrative Specialist.			
STATE FUNDED POSITIONS 0.40	TOTAL POSITIONS 0.40	STATE FUNDS \$ 1,458	TOTAL FUNDS \$ 1,458
PRIORITY # 14	PROGRAM NAME: Landscape Architects Registration		
To provide for the transfer of .25 FTE Administrative Assistant II from Administration to Landscape Architects Registration as per recommendation of the Legislative Audit Council.			
STATE FUNDED POSITIONS 0.25	TOTAL POSITIONS 0.25	STATE FUNDS \$ 8,514	TOTAL FUNDS \$ 8,514
PRIORITY # 15	PROGRAM NAME: Conservation Districts		
To provide 1.00 FTE for monitoring of Petroleum Overcharge Grant. Position including salary and fringe, \$30,900 and other expenses \$9,500.			
STATE FUNDED POSITIONS 0.00	TOTAL POSITIONS 1.00	STATE FUNDS -0-	TOTAL FUNDS \$ 40,400
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
AGENCY TOTALS:			
			<b>02563</b>
STATE FUNDED POSITIONS 19.65	TOTAL POSITIONS 21.65	STATE FUNDS \$1,294,519	TOTAL FUNDS \$1,414,919

# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME S.C. Land Resources Commission

AGENCY CODE P08

## REQUESTED INCREASES

<b>PRIORITY #</b> 1	<b>PROGRAM NAME:</b> Soils, Planning and Resource Information		
To provide funding for State wetland mapping and computerization of South Carolina's wetlands data.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$300,000	TOTAL FUNDS \$300,000
<b>PRIORITY #</b> 2	<b>PROGRAM NAME:</b> Mining and Reclamation		
To provide funds for mining enforcement and monitoring equipment.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$ 25,000	TOTAL FUNDS \$ 25,000
<b>PRIORITY #</b> 3	<b>PROGRAM NAME:</b> Mining and Reclamation		
To provide funds for aerial photography of the State to identify mine sites.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$ 10,000	TOTAL FUNDS \$ 10,000
<b>PRIORITY #</b> 4	<b>PROGRAM NAME:</b> Conservation Districts		
To provide funds for video and audio equipment for public information.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$ 10,875	TOTAL FUNDS \$ 10,875
<b>PRIORITY #</b> 5	<b>PROGRAM NAME:</b> Erosion, Sediment and Stormwater Mgmt.		
To provide funds for 13 critical flood control projects throughout the State of South Carolina.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$575,000	TOTAL FUNDS \$575,000
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
<b>C2564</b>			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS	TOTAL FUNDS
<b>AGENCY TOTALS:</b>			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS \$920,875	TOTAL FUNDS \$920,875



BASE BUDGET INFORMATION  
WATER RESOURCES COMMISSION

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TOTAL APPROPRIATION BASE FOR 1989-90	4,183,253
ANNUALIZE EMP CONT INC	9,904
ANNUALIZATION OF BASE PAY INCREASE	18,017

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90-91 BASE	4,211,174
TOTAL STATE FTE'S	( 64.00)

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02565

# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME South Carolina Water Resources Commission AGENCY CODE P04

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: River Basin Water Budget Model	
Conduct river basin modeling of the Catawba-Wateree Basin.			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	178,281	TOTAL FUNDS	178,281
PRIORITY #	2	PROGRAM NAME: Natural Resources Decision System	
Provide matching funds to conduct a natural resources research and demonstration project within the Edisto River Basin.			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	249,437	TOTAL FUNDS	249,437
PRIORITY #	3	PROGRAM NAME: Pee Dee Ground Water Study	
Provide funds to match federal and local funds to conduct ground water investigations and aquifer modeling of Florence, SC and surrounding counties.			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	152,400	TOTAL FUNDS	152,400
PRIORITY #	4	PROGRAM NAME: Administrative Services	
Provide funds to support data processing and accounting functions of agency and annual rent increases.			
STATE FUNDED POSITIONS	2.00	TOTAL POSITIONS	2.00
STATE FUNDS	131,966	TOTAL FUNDS	131,966
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
AGENCY TOTALS:		02566	
STATE FUNDED POSITIONS	8.00	TOTAL POSITIONS	8.00
STATE FUNDS	712,084	TOTAL FUNDS	712,084

# EXHIBIT

SEP 6 1989 NO. 1

BASE BUDGET INFORMATION  
CLEMSON UNIVERSITY-PUBLIC SERVICE ACTIVITIES

STATE BUDGET & CONTROL BOARD

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TOTAL APPROPRIATION BASE FOR 1989-90	43,335,478
ANNUALIZE EMP CONT INC	152,604
ANNUALIZATION OF BASE PAY INCREASE	283,335

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90-91 BASE	43,771,417
TOTAL STATE FTE'S	( 906.23)

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02567



# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME Clemson University - Public Service Activities AGENCY CODE P-20

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME:		All programs
Ensuring economic and environmental competitiveness				
STATE FUNDED POSITIONS	61	TOTAL POSITIONS	61	STATE FUNDS 7,137,150
				TOTAL FUNDS 7,137,150
PRIORITY #	2	PROGRAM NAME:		All programs
Developing rural South Carolina				
STATE FUNDED POSITIONS	103	TOTAL POSITIONS	103	STATE FUNDS 5,730,945
				TOTAL FUNDS 5,730,945
PRIORITY #	3	PROGRAM NAME:		All programs
Increasing program effectiveness				
STATE FUNDED POSITIONS	6	TOTAL POSITIONS	6	STATE FUNDS 2,908,000
				TOTAL FUNDS 2,908,000
PRIORITY #		PROGRAM NAME:		
Agency totals				
STATE FUNDED POSITIONS	170	TOTAL POSITIONS	170	STATE FUNDS 15,776,095
				TOTAL FUNDS 15,776,095
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
				02538
STATE FUNDED POSITIONS		TOTAL POSITIONS		STATE FUNDS
				TOTAL FUNDS

BASE BUDGET INFORMATION  
DEPARTMENT OF PARKS, RECREATION & TOURISM

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TOTAL APPROPRIATION BASE FOR 1989-90	15,168,930
ANNUALIZE EMP CONT INC	61,421
ANNUALIZATION OF BASE PAY INCREASE	72,392

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90-91 BASE	15,302,743
TOTAL STATE FTE'S	( 381.47)

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02589

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME PARKS, RECREATION & TOURISM

AGENCY CODE

P28

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: Tourism Division - Advertising			
South Carolina must spend more money on tourism advertising to keep and increase its share of the highly competitive travel, vacation and convention markets. This program directly supports increased tourism and travel spending, tax revenues and employment.					
STATE FUNDED POSITIONS	-0-	TOTAL POSITIONS	-0-	STATE FUNDS	600,000
				TOTAL FUNDS	600,000
PRIORITY #	2	PROGRAM NAME: State Parks - New Park & Annualizations			
These funds and positions will fully annualize partially funded positions at four new state parks; provide for a partial year's operation of the new Devil's Fork State Park on Lake Jocassee; and green maintenance for the new golf course at Cheraw State Park.					
STATE FUNDED POSITIONS	24	TOTAL POSITIONS	24	STATE FUNDS	537,775
				TOTAL FUNDS	736,375
PRIORITY #	3	PROGRAM NAME: Recreation Land Trust Fund			
Annualize the \$1 million originally approved for the Recreation Land Trust Fund in a 89/90 non-recurring appropriation. These funds are needed to acquire state and local park and recreation areas throughout the state, with special attention to beach and coastal access areas					
STATE FUNDED POSITIONS	-0-	TOTAL POSITIONS	-0-	STATE FUNDS	1,000,000
				TOTAL FUNDS	1,000,000
PRIORITY #	4	PROGRAM NAME: Tourism and Recreation Development			
This initiative will implement State and PRT Commission goals to extend the full economic and quality of life benefits of tourism and recreation to the entire state, including rural and small town areas. Funds are needed to adequately staff and support this effort in cooperation with other agencies.					
STATE FUNDED POSITIONS	7	TOTAL POSITIONS	7	STATE FUNDS	198,236
				TOTAL FUNDS	198,236
PRIORITY #	5	PROGRAM NAME: Tourism - International Marketing			
Fund a marketing program in Japan and build on the pilot effort started in 89/90. PRT's European International marketing is proving highly successful and the Japan/Far East market will further expand international activity and enhance other state economic development efforts.					
STATE FUNDED POSITIONS	-0-	TOTAL POSITIONS	-0-	STATE FUNDS	300,000
				TOTAL FUNDS	300,000
PRIORITY #	6	PROGRAM NAME: State Parks - Maintenance			
A large backlog of maintenance needs exist throughout the state park system. At stake is the safety and adequate service for park visitors as well as the protection of investments in 3,001 buildings, structures and infrastructure.					
STATE FUNDED POSITIONS	-0-	TOTAL POSITIONS	-0-	STATE FUNDS	600,000
				TOTAL FUNDS	600,000



# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME PARKS, RECREATION & TOURISM

AGENCY CODE P28

## REQUESTED INCREASES

PRIORITY #	7	PROGRAM NAME: Administration Division	
Implement recent audit recommendations and engage a staff legal counsel to strengthen management procedures and accountability. These positions are necessary to keep pace with growing regulatory needs and responsibilities of a \$54 million PRT operation involving management of over 60 properties and many programs.			
STATE FUNDED POSITIONS	3	TOTAL POSITIONS	3
STATE FUNDS	119,092	TOTAL FUNDS	119,092
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS		TOTAL POSITIONS	
STATE FUNDS		TOTAL FUNDS	
AGENCY TOTALS:		62571	
STATE FUNDED POSITIONS	34	TOTAL POSITIONS	34
STATE FUNDS	3,355,103	TOTAL FUNDS	3,553,703

# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME PARKS, RECREATION & TOURISM

AGENCY CODE P28

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: State Parks: Devil's Fork Cabins	
Devil's Fork State Park is a joint project of PRT and Duke Power Company. PRT is requesting funds to build 20 rental cabins at this new park on the shores of Lake Jocassee in Oconee County. Duke Power will match \$830,000 of the state funds with a like amount to build the cabins and add a valuable amenity to this beautiful upcountry park.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	968,055	TOTAL FUNDS	968,055
PRIORITY #	2	PROGRAM NAME: State Parks: New Park Equipment	
Two new parks, Devil's Fork in Oconee County and Calhoun Falls in Abbeville County, require funds for equipment and start-up needs. The new golf course at Cheraw State Park will require special maintenance equipment.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	726,222	TOTAL FUNDS	726,222
PRIORITY #	3	PROGRAM NAME: State Parks: Improvements	
Funds are requested to make needed improvements to Lake Greenwood State Park and to stabilize eroding shoreline areas. This is one of the most heavily used parks in the entire park system and must be maintained properly for optimum public use.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	258,041	TOTAL FUNDS	258,041
PRIORITY #	4	PROGRAM NAME: Recreation Land Trust Fund	
Funding needed to acquire land for an oceanfront state park to protect significant natural resources and provide public beach and coastal water access that will be needed in the future.			
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	6,000,000	TOTAL FUNDS	6,000,000
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS		TOTAL FUNDS	
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS		TOTAL FUNDS	
AGENCY TOTALS:		62572	
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A
STATE FUNDS	7,952,318	TOTAL FUNDS	7,952,318

BASE BUDGET INFORMATION  
STATE DEVELOPMENT BOARD

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TOTAL APPROPRIATION BASE FOR 1989-90	8,821,733
ANNUALIZE EMP CONT INC	14,347
ANNUALIZATION OF BASE PAY INCREASE	30,077

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90-91 BASE	8,866,157
TOTAL STATE FTE'S	( 97.00)

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02573



# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. STATE DEVELOPMENT BOARD

AGENCY CODE P32

## REQUESTED INCREASES

<b>PRIORITY # 1</b>	<b>PROGRAM NAME:</b> Research & Information Resources		
To implement a new information technology strategy, increase prospect research capacity and further the GIS program.			
STATE FUNDED POSITIONS 5.00	TOTAL POSITIONS 5.00	STATE FUNDS 223,286	TOTAL FUNDS 223,286
<b>PRIORITY # 2</b>	<b>PROGRAM NAME:</b> National Business Development		
To implement the consultant strategy and IDRC promotion.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 95,000	TOTAL FUNDS 95,000
<b>PRIORITY # 3</b>	<b>PROGRAM NAME:</b> International Business Development		
Respond to workload in prospecting and marketing activities.			
STATE FUNDED POSITIONS 1.00	TOTAL POSITIONS 1.00	STATE FUNDS 90,191	TOTAL FUNDS 90,191
<b>PRIORITY # 4</b>	<b>PROGRAM NAME:</b> Finance and Administration		
To fund operational cost increases, fill need for personnel workload, carry on the School-Based Enterprise and implement the technology transfer.			
STATE FUNDED POSITIONS 1.00	TOTAL POSITIONS 1.00	STATE FUNDS 520,030	TOTAL FUNDS 520,030
<b>PRIORITY # 5</b>	<b>PROGRAM NAME:</b> Special Programs		
Increase response capacity in Available Sites and Buildings and Rural and Community Development.			
STATE FUNDED POSITIONS 2.00	TOTAL POSITIONS 2.00	STATE FUNDS 78,586	TOTAL FUNDS 78,586
<b>PRIORITY # 6</b>	<b>PROGRAM NAME:</b> Public Affairs		
Increase national and international attention on South Carolina and coordinate Special Project events.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 205,000	TOTAL FUNDS 205,000

02574

# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME S.C. STATE DEVELOPMENT BOARD

AGENCY CODE P32

## REQUESTED INCREASES

<b>PRIORITY #</b> 7	<b>PROGRAM NAME:</b> Communications and Advertising		
To increase our capacity to respond to film media inquiries, to increase South Carolina's presence in the international arena and continue to develop the advertising capacities.			
STATE FUNDED POSITIONS 1.00	TOTAL POSITIONS 1.00	STATE FUNDS 611,120	TOTAL FUNDS 611,120
<b>PRIORITY #</b> 8	<b>PROGRAM NAME:</b> Executive & Board		
To increase ability to meet with prospective investors and developers.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 20,000	TOTAL FUNDS 20,000
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>PRIORITY #</b>	<b>PROGRAM NAME:</b>		
<b>02575</b>			
STATE FUNDED POSITIONS 10.00	TOTAL POSITIONS 10.00	STATE FUNDS 1,843,213	TOTAL FUNDS 1,843,213

# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME S.C. STATE DEVELOPMENT BOARD AGENCY CODE P32

## REQUESTED INCREASES

<b>PRIORITY #</b> 1	<b>PROGRAM NAME:</b> Research & Information Resources		
To complete staff workstation needs, enhance computer-based Allies link and GIS workstation, software and screen and to implement a statewide information bank and technology network.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 682,950	TOTAL FUNDS 682,950
<b>PRIORITY #</b> 2	<b>PROGRAM NAME:</b> Communications & Advertising		
Development of a video "Hard Facts About S.C." to be used as a recruitment tool and to update brochures for the international market.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 428,138	TOTAL FUNDS 428,138
<b>PRIORITY #</b> 3	<b>PROGRAM NAME:</b> International Business Development		
Participation in EXPO '92.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 60,000	TOTAL FUNDS 60,000
<b>PRIORITY #</b> 4	<b>PROGRAM NAME:</b> Special Programs		
The promotional materials programs to assist counties, municipalities and nonprofit entities in economic development.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 200,000	TOTAL FUNDS 200,000
<b>PRIORITY #</b> 5	<b>PROGRAM NAME:</b> Public Affairs		
Assistance as S.C. hosts the Southeast-US Korea Conference.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 100,000	TOTAL FUNDS 100,000
<b>PRIORITY #</b> 6	<b>PROGRAM NAME:</b> Finance & Administration		
Sponsoring of Enterprise Development Conference in the area of education, risk capital and entrepreneurial policy.			
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 10,000	TOTAL FUNDS 10,000
<b>AGENCY TOTALS:</b>			<b>02576</b>
STATE FUNDED POSITIONS N/A	TOTAL POSITIONS N/A	STATE FUNDS 1,481,088	TOTAL FUNDS 1,481,088



BASE BUDGET INFORMATION  
STATE ELECTION COMMISSION

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TOTAL APPROPRIATION BASE FOR 1989-90	1,769,987
ANNUALIZE EMP CONT INC	2,907
ANNUALIZATION OF BASE PAY INCREASE	4,603

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90-91 BASE	1,777,497
TOTAL STATE FTE'S	( 17.50)

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02577

# 1 990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME STATE ELECTION COMMISSION AGENCY CODE E28

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: CENTRAL VOTER REGISTRATION SYSTEM	
To provide funds to cover increases in cost for computer support needed to build and maintain voter registration file. Computer support is furnished by DIRM.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS \$40,307	TOTAL FUNDS \$40,307
PRIORITY #	2	PROGRAM NAME: ADMINISTRATION	
To provide funding to lease additional office space to be utilized as a conference room.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS \$8,928	TOTAL FUNDS \$8,928
PRIORITY #	3	PROGRAM NAME: ELECTIONS - EDUCATIONAL SERVICES	
Provide funds to cover increased travel in training division.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS \$2,300	TOTAL FUNDS \$2,300
PRIORITY #	4	PROGRAM NAME: ELECTRONIC VOTING SYSTEM	
Provide funds to purchase maintenance contract on Versatec Plotter which is used to plot and print ballots for all elections in counties using electronic voting equipment.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS \$7,000	TOTAL FUNDS \$7,000
PRIORITY #	5	PROGRAM NAME: ELECTRONIC VOTING SYSTEM	
Provide funds to purchase maintenance contract on engineering type copier which will be used to copy ballot pages for electronic voting machines.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS \$4,250	TOTAL FUNDS \$4,250
PRIORITY #		PROGRAM NAME:	
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
AGENCY TOTALS:		02578	
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS 62,785	TOTAL FUNDS 62,785

# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME STATE ELECTION COMMISSION AGENCY CODE E28

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: ELECTION - OFFICE OF ELECTIONS		
Provide funding for poll managers, printing and miscellaneous expenses for the 1990 General Election.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS \$1,950,000
				TOTAL FUNDS \$1,950,000
PRIORITY #	2	PROGRAM NAME: ELECTIONS - EDUCATIONAL SERVICES		
Provide funds to replace 1980 Stationwagon used to transport election lists and supplies with a Van.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS \$15,000
				TOTAL FUNDS \$15,000
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
AGENCY TOTALS:				02579
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 1,965,000
				TOTAL FUNDS 1,965,000



# EXHIBIT

SEP 6 1989

NO. 1

BASE BUDGET INFORMATION  
ADJUTANT GENERAL'S OFFICE

STATE BUDGET & CONTROL BOARD

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TOTAL APPROPRIATION BASE FOR 1989-90	5,561,361
ANNUALIZE EMP CONT INC	9,496
ANNUALIZATION OF BASE PAY INCREASE	13,858

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90-91 BASE	5,584,715
TOTAL STATE FTE'S	( 58.50)

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02580

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME ADJUTANT GENERAL'S OFFICE AGENCY CODE E24

## REQUESTED INCREASES

PRIORITY # <u>1</u>	PROGRAM NAME: <u>EMPLOYEE BENEFITS</u>		
Provide for increased pension requirements for National Guard members qualifying in FY90-91.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS <u>158,900</u>	TOTAL FUNDS <u>158,900</u>
PRIORITY # <u>2</u>	PROGRAM NAME: <u>ADMINISTRATION</u>		
Provide for the restoration of rental funds transferred to other programs in FY89-90 Appropriation Bill and to provide additional funds for insurance.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS <u>107,787</u>	TOTAL FUNDS <u>107,787</u>
PRIORITY # <u>3</u>	PROGRAM NAME: <u>BUILDINGS AND GROUNDS</u>		
Provide funding for additional materials and supplies to be used by in-house labor, contractual services, replacement equipment, and travel for maintenance crews. These funds will be used for preventative maintenance.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS <u>226,727</u>	TOTAL FUNDS <u>262,977</u>
PRIORITY # <u>4</u>	PROGRAM NAME: <u>ADMINISTRATION</u>		
Provide funds for the positions of Accountant in Budget and Finance and Administrative Specialist C in Personnel.			
STATE FUNDED POSITIONS <u>2.00</u>	TOTAL POSITIONS <u>2.00</u>	STATE FUNDS <u>44,967</u>	TOTAL FUNDS <u>44,967</u>
PRIORITY # <u>5</u>	PROGRAM NAME: <u>MILITARY PERSONNEL</u>		
Provide funds to purchase awards and citations, microfilm permanent agency records, and hire one (1) employee to manage State Workmen's Compensation.			
STATE FUNDED POSITIONS <u>1.00</u>	TOTAL POSITIONS <u>1.00</u>	STATE FUNDS <u>58,358</u>	TOTAL FUNDS <u>58,358</u>
PRIORITY # <u>6</u>	PROGRAM NAME: <u>EMERGENCY PREPAREDNESS</u>		
Provide employees to 1) coordinate Savannah River Nuclear emergency response, 2) assist State in developing community disaster programs and 3) manage State Survivable Crisis Management Centers.			
STATE FUNDED POSITIONS <u>1.00</u>	TOTAL POSITIONS <u>3.00</u>	STATE FUNDS <u>26,657</u>	TOTAL FUNDS <u>91,818</u>

# 1990-91 BUDGET REQUEST SUMMARY

(The following information has been supplied by the agency.)

AGENCY NAME ADJUTANT GENERAL'S OFFICE AGENCY CODE E24

## REQUESTED INCREASES

PRIORITY # <u>7</u>	PROGRAM NAME: <u>MCENTIRE ANG BASE</u>		
To provide for the addition of a licensed sewage plant operator.			
STATE FUNDED POSITIONS <u>.25</u>	TOTAL POSITIONS <u>1.00</u>	STATE FUNDS <u>4,800</u>	TOTAL FUNDS <u>19,200</u>
PRIORITY # <u>8</u>	PROGRAM NAME: <u>ARMY CONTRACT SUPPORT</u>		
Provide funds to establish three 100% federally funded positions.			
STATE FUNDED POSITIONS	TOTAL POSITIONS <u>3.00</u>	STATE FUNDS	TOTAL FUNDS <u>61,600</u>
PRIORITY # <u>9</u>	PROGRAM NAME: <u>TRAINING SITE</u>		
Provide for an additional Custodial Worker for the upkeep and maintenance of 51 bedrooms.			
STATE FUNDED POSITIONS	TOTAL POSITIONS <u>1.00</u>	STATE FUNDS	TOTAL FUNDS <u>13,518</u>
PRIORITY # <u>10</u>	PROGRAM NAME: <u>EMPLOYEE BENEFITS</u>		
Provide Workman's Compensation Insurance for the National Guardsmen, including prior years premiums.			
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS <u>3,542,562</u>	TOTAL FUNDS <u>3,542,562</u>
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
PRIORITY #	PROGRAM NAME:		
STATE FUNDED POSITIONS	TOTAL POSITIONS	STATE FUNDS	TOTAL FUNDS
<b>AGENCY TOTALS:</b>			
STATE FUNDED POSITIONS <u>4.25</u>	TOTAL POSITIONS <u>11.00</u>	STATE FUNDS <u>4,170,758</u>	TOTAL FUNDS <u>4,361,687</u>

**02582**



# 1990-91 BUDGET REQUEST SUMMARY (NON-RECURRING)

(The following information has been supplied by the agency.)

AGENCY NAME ADJUTANT GENERAL'S OFFICE AGENCY CODE F24

## REQUESTED INCREASES

PRIORITY #	1	PROGRAM NAME: BUILDINGS AND GROUNDS		
To provide for contract repairs to armories and special purpose buildings.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 91,250
				TOTAL FUNDS 127,500
PRIORITY #	2	PROGRAM NAME: BUILDINGS AND GROUNDS		
Provide supplies and materials for in-house labor for repairs on additions to property located throughout the State.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 66,500
				TOTAL FUNDS 141,500
PRIORITY #	3	PROGRAM NAME: BUILDINGS AND GROUNDS		
To provide for the replacement of worn out equipment. Includes compressors, electric motors, pumps, HVAC units, and armory maintenance equipment.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 65,379
				TOTAL FUNDS 65,379
PRIORITY #	4	PROGRAM NAME: MILITARY PERSONNEL		
To provide storage space for blank forms, and to purchase a reel reader/printer.				
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 5,565
				TOTAL FUNDS 5,565
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
PRIORITY #		PROGRAM NAME:		
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS
				TOTAL FUNDS
AGENCY TOTALS:				02583
STATE FUNDED POSITIONS	N/A	TOTAL POSITIONS	N/A	STATE FUNDS 228,694
				TOTAL FUNDS 339,944

# EXHIBIT

SEP 6 1989

NO. 1

RECEIVED

AUG 23 1989

DIVISION OF ENERGY  
AGRICULTURE & NATURAL RES.

STATE BUDGET & CONTROL BOARD TIMOTHY W. KANA

President

*Dr. Kana is senior technical director and president of Coastal Science & Engineering, Inc. During the past 15 years, he has supervised over 100 technical projects dealing with beach erosion, shore-protection planning, sedimentation in estuaries, littoral sand transport, flow through inlets, and coastal processes. Studies included predictive models of shoreline change during rising sea levels; soft-engineering solutions to beach erosion; feasibility studies of beach nourishment, dredging, and marina siting; sediment budget analyses; and tidal inlet dynamics. Dr. Kana has directed planning and design for beach nourishment projects at Myrtle Beach, Seabrook Island, and Isle of Palms (South Carolina); and in Kuwait. Other field experience includes over 20 oceanographic cruises to the Chesapeake Bay and middle Atlantic shelf, coastal and estuarine surveys in Alaska, Texas, Florida, France, West Africa, Australia, and the Caribbean. Suspended-sediment sampling equipment designed by Kana has been used by the Universities of Delaware, Rhode Island, and South Carolina. He has written over 130 technical reports and publications on a range of coastal research topics--shore protection, beach erosion, current and sedimentation measurements in estuaries or tidal entrances, littoral processes, and suspended-sediment transport.*

## EDUCATION

Ph.D., Coastal Processes, University of South Carolina (USC).  
M.S., Coastal Geology, USC.  
B.A., Geology/Oceanography, The Johns Hopkins University.

## EMPLOYMENT

1984-present: Founder and president, Coastal Science & Engineering, Inc., Columbia, South Carolina.  
1977-1984: Founding partner, Research Planning Institute, Inc. (RPI), Columbia, South Carolina.  
1978-present: Adjunct Professor, Department of Geology, USC.  
1974-1978: Graduate Research Assistant, Department of Geology, USC.  
1969-1973: Research Assistant, Chesapeake Bay Institute, The Johns Hopkins University, Baltimore, Maryland.  
1966-1972: United States Naval Reserve.

MEMBER Who's Who in Frontier Science & Technology (1984)

## EXPERT TESTIMONY (1982-present)

Qualified and admitted in the following areas:

- Marine geology
- Coastal processes
- Estuarine processes
- Beach erosion

## PROFESSIONAL ORGANIZATIONS

Society of Sigma Xi (1978-)  
American Society of Civil Engineers (1981-)  
American Geophysical Union (1986-)  
Society of Economic Paleontologists and Mineralogists (1974-)  
Professional Association of Diving Instructors (1972-1983)

REGISTRATION Professional marine geologist (S.C. 564)

LANGUAGE(S) FACILITY  
Spanish German

02584



## BEACH EROSION/COASTAL PROCESSES

### PROFESSIONAL EXPERIENCE

Dr. Kana has completed shoreline assessments and erosion analyses for numerous coastal sites along the U.S. East Coast and selected overseas locations. Most of these investigations have involved field surveys, aerial inspections, and measurement of local coastal processes. He developed quantitative methodology which was later adopted by the State of South Carolina for purposes of establishing baselines and setback lines for coastal development. Dr. Kana was an invited member of an expert group sponsored by the United Nations that advised the countries of Togo and Benin, West Africa, on problems of beach erosion. Other professional experience includes:

- \*Sea-level rise impact studies, South Carolina and New Jersey — EPA (1982-1986)
- \*Sediment budget, Fire Island Inlet to Montauk, New York — USACE (1981-1984)
- \*Field studies of coastal processes — Kuwait Waterfront Project (1977-1979; 1984-1986)
- \*Littoral transport studies, South Carolina and North Carolina — USACE (1975-1979)
- \*Beach profile analysis system (software) — USACE/RPI (1981-1983)
- \*Shoreline assessments and erosion surveys — extended study (1975 to present):

Long Island, N.Y.	Pawleys Island, S.C.	Seabrook Island, S.C.	Padre Island, Tex.
Cape May, N.J.	Debidue Island, S.C.	Hilton Head Island, S.C.	Port Heiden, Alaska
Duck, N.C.	Bulls Island, S.C.	Daufuskie Island, S.C.	Togo, West Africa
Topsail Beach, N.C.	Capers Island, S.C.	St. Simons Island, Ga.	Benin, West Africa
North Myrtle Beach, S.C.	Dewees Island, S.C.	Sea Island, Ga.	Lagos, Nigeria
Myrtle Beach, S.C.	Isle of Palms, S.C.	Daytona Beach, Fla.	Brittany, France
Litchfield Beach, S.C.	Kiawah Island, S.C.	Galveston Island, Tex.	Kuwait, Arabian Gulf

### PUBLICATIONS [\*paper presented by Kana]

- Davidson, M.W., and T.W. Kana. 1988. Future sea level rise and its implications for Charleston, South Carolina. In M.H. Glantz, *Societal Responses to Regional Climatic Change: Forecasting by Analogy*, Westview Press, Colorado, pp. 197-214.
- Kana, T.W. 1988. Barrier islands in South Carolina. In *South Carolina Public Beach and Coastal Access Guide*, S.C. Parks Recreation & Tourism, pp. 113-114.
- Kana, T.W. 1988. Beach erosion in South Carolina. Booklet, South Carolina Sea Grant Consortium, SC5G-SP-88-1, Charleston, S.C., 55 pp.
- Kana, T.W., and W.J. Sexton. 1988. Barrier beaches and tidal inlets of South Carolina. In D.T. Secor, Jr. (ed.), *Southeastern Geological Excursions, Field Trip Guidebook*, Geological Society of America, SE Section, pp. 185-203.
- Williams, M.L., and T.W. Kana. 1987. Inlet shoal attachment and erosion at Isle of Palms, South Carolina: a replay. In *Proc. Coastal Sediments '87*, ASCE, New York, N.Y., pp. 1174-1187.
- Hayes, M.O., J. Michel, and T.W. Kana. 1986. Coastal processes and geomorphology along the Kuwait City waterfront. In R. Halwagy et al. (eds.), *Marine Environment and Pollution: Proc. First Arabian Gulf Conf. on Environment and Pollution* (February 1982), Kuwait University, Safat, pp. 25-41.
- Gundlach, E.R., T.W. Kana, and P.D. Boehm. 1985. Modeling spilled oil partitioning in nearshore and surf zone areas. In *Proc. 1985 Oil Spill Conf.*, Amer. Petrol. Inst., Publ. No. 4385, Wash., D.C., pp. 379-384.
- Kana, T.W., J. Michel, M.O. Hayes, and J.R. Jensen. 1984. The physical impact of sea-level rise in the area of Charleston, South Carolina. In M.C. Barth and J.G. Titus (eds.), *Greenhouse Effect and Sea Level Rise*, Van Nostrand Reinhold Co., New York, N.Y., pp. 105-150.
- \*Kana, T.W., J. Michel, M.O. Hayes, and J.R. Jensen. 1983. Shoreline changes due to various sea-level rise scenarios. In *Proc. Coastal Zone '83*, ASCE, New York, N.Y., pp. 2768-2776.
- \*Hayes, M.O., and T.W. Kana. 1980. Nature of erosional/depositional trends on barrier islands. Abstract: 24th Ann. Mtg., Florida Shore and Beach Preservation Assoc., Palm Beach, Fla.
- Hayes, M.O., J. Michel, and T.W. Kana. 1978. Man's modification of the Kuwait City waterfront. Abstract: Amer. Assoc. Geog., New Orleans, La.
- Kana, T.W. 1977a. Beach erosion during minor storm. *Jour. Waterway, Port, Coastal and Ocean Eng.*, ASCE, New York, N.Y., Vol. 103(WW4), pp. 505-518.
- \*Kana, T.W. 1976. A storm threshold required to produce beach erosion at Debidue Island, South Carolina. In *Proc. 25th Ann. Mtg.*, GSA, SE Section.
- Hayes, M.O., and T.W. Kana (eds.). 1976. Terrigenous clastic depositional environments. Tech. Rept. No. 11-CRD, Coastal Res. Div., Geol. Dept., USC, Columbia, 308 pp.

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### REPORTS

- Jones, C.P., D.M. Scaturro, T.W. Kana, and W.C. Eiser. 1988. Calculation of interim baselines and 40-year setback lines. Final Rept. to SCCC; CSE, Columbia, S.C., 60 pp. + appendices.
- Eiser, W.C., T.W. Kana, and C.P. Jones. 1988. Analysis of beach survey data along the South Carolina coast: October 1987 — August 1988. Final Rept. to SCCC; CSE, Columbia, S.C., 78 pp. + appendices.
- Eiser, W.C., and T.W. Kana. 1988. Analysis of beach survey data along the South Carolina coast: October 1986 — October 1987. Final Rept. to South Carolina Coastal Council; CSE, Columbia, S.C., 48 pp. + 6 appendices.
- Kana, T.W. 1987. Beach surveys along Seabrook Island, South Carolina: June 1986 to August 1987. Final Rept. to Seabrook Island POA; CSE, Columbia, S.C., 49 pp. + appendices.



## COASTAL ENGINEERING/BEACH NOURISHMENT

## PROFESSIONAL EXPERIENCE

Dr. Kana has served as project director or technical advisor on a variety of shore protection and beach nourishment projects. His work and planning philosophy emphasize soft engineering solutions to erosion along the oceanfront. Among the innovative projects Kana has supervised was an inlet relocation at Seabrook Island which resulted in restoration of two miles of eroded beach. Dr. Kana was supervisor (S) or assisted in design (A) of the following beach nourishment projects:

* Myrtle Beach, S.C.	\$4,500,000	850,000 yd <sup>3</sup> by truck	1985-1987	(S)
* Seabrook Island, S.C.	\$300,000	1,500,000 yd <sup>3</sup> by inlet relocation	1983	(S)
* Seabrook Island, S.C.	\$250,000	250,000 yd <sup>3</sup> by scrapers	1983	(S)
* Pawleys Island, S.C.	\$100,000	55,000 yd <sup>3</sup> by scrapers	1988	(S)
* Isle of Palms, S.C.	\$100,000	150,000 yd <sup>3</sup> by scrapers	1982-1984	(S)
* Myrtle Beach, S.C.	\$150,000	150,000 yd <sup>3</sup> by scrapers	1982-1983	(S)
* Kuwait Waterfront Project	\$7,000,000 est.	600,000 yd <sup>3</sup> by truck	1984-1986	(A)
* Isle of Palms, S.C.	\$1,000,000 est.	350,000 yd <sup>3</sup> by dredge	1984	(A)

Other coastal engineering experience includes assistance in developing design criteria and shore protection plans for:

* Groin	Isle of Palms, S.C.	\$30,000	120 ft	1982
* Offshore breakwaters	Hilton Head/Isle of Palms, S.C.	Not constructed		
* Bulkheads	Debidue/Seabrook Island, S.C.	\$500,000	3,000 ft	1981-1986
* Marina Breakwaters	Doha Al Shaab, Kuwait	\$10,000,000 est.	1,500 ft	1984-1985
	Gulf Marina, Jubail, Saudi Arabia	N/A	1,000 ft	N/A
	Stamford, Connecticut	N/A	800 ft	N/A
	Davids Island, New York	N/A	1,500 ft	N/A
* Revetments/Seawalls	Lake Ontario, New York	N/A	Generic	N/A
* Inlet/Lagoon	Dubaiyeh, Kuwait	N/A	500 hc	N/A
* Beach Nourishment	Seabrook Island, S.C.	\$1,500,000	600,000 yd <sup>3</sup>	N/A
* Beach Nourishment	Sea Island, Georgia	N/A	1,000,000 yd <sup>3</sup>	N/A
* Groins/Revetments	Kuwait Waterfront Project, Phases I-II	\$25,000,000 est.	15,000 ft	1984-1986
* Artificial Island	Kuwait Waterfront Project, Phases I-II	\$25,000,000 est.	3,500 ft	1984-1986

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# EXHIBIT

SEP 6 1989

NO. 1

## MANAGING SOUTH CAROLINA'S BEACHES DURING THE 1990s<sup>1</sup>

Timothy W. Kana, Ph.D.  
Coastal Science & Engineering, Inc.

STATE BUDGET & CONTROL BOARD

The 1988 Beach Management Act (BMA) is a major step forward in managing South Carolina's beaches. But this is only part of what is needed for long-term, oceanfront management. Because 50 percent of our coast is already developed, we need an integrated approach to conserving our beaches—one that entails these three elements:

- 1) **Development setbacks** for new construction and reconstruction.
- 2) **Beach nourishment** for eroding areas.
- 3) **Shoreline monitoring and maintenance** of the sand-sharing system.

The new law only accomplished item one. It prescribes development setbacks prorated for the local erosion rate. But it falls short with items two and three. It does not explicitly encourage beach nourishment, and the state budget for monitoring is inadequate considering the amount of coastline at risk.

The BMA methodology has already proved useful because it provides an objective measure of the vulnerability of each coastal reach to storms. Unlike the old methods of placing development control lines along the dunes or seawalls regardless of erosion trends and beach condition, the new law uses a state-of-the-art 3-D approach. It treats the beach and nearshore area as a dynamic and integrated system. Think of each length of beach as a sand box. The BMA methodology defines the quantity of sand in the sand box. The South Carolina Coastal Council (SCCC) beach survey program is crucial for this and should be upgraded to provide even more detail, more often.

Beach surveys provide a measure of the health of a particular beach. They indicate how much extra sand is available in the sand-sharing system (if the area is healthy) or how much sand is needed to bring the area up to some minimal standard. As a result, the BMA provides the methodology for determining nourishment needs along the coast. If we had had similar information on December 31, 1986, we could have predicted where the worst damage would occur during the New Year's Day storm. Portions of Garden City sustained great losses to property because they had a poor beach to begin with. If they had nourished their beach before the storm like Myrtle Beach did, their damages would have been reduced.

<sup>1</sup>Statement to South Carolina Budget & Control Board, September 6, 1989

02587

Three tables are enclosed outlining past and estimated future nourishment requirements for South Carolina beaches during the next decade. This information has been developed from numerous sources and experience from previous projects. The estimates are predicated on these criteria:

- 1) Minimal (25-50 ft) dry-sand beach during all astronomic tides.
- 2) Sufficient nourishment volume to justify moving baselines seaward such that developed property will be rebuildable if destroyed under the 1988 BMA.
- 3) Additional sand required to replace yearly erosion.

Table 1 lists the projects that were completed between 1980 and 1988. They total about 25 miles of shoreline (14 percent of the state's total shoreline) and cost about \$12.5 million. The Myrtle Beach project was one of the largest. Clearly, this cumulative effort was not sufficient to keep pace with the erosion problems at Cherry Grove, Folly Beach, Hilton Head or Hunting Island, among other sites.

Table 2 lists projects well along in planning for six localities. These areas comprise about 33.5 miles of coastline. Note, however, the cost per foot of shoreline is much higher than what was spent from 1980 to 1988--\$366 versus \$94. Table 2 does not include Pawleys Island, Debidue, Edisto, Hunting Island, and Fripp--all of which require nourishment or some erosion control measures. Furthermore, Table 2 shows exceedingly high costs and sand volumes for the Grand Strand where erosion rates are typically less than 1 ft/yr, in comparison to Hilton Head where erosion at the center of the island exceeds 6 ft/yr.

To develop a more complete estimate of the nourishment needs, Coastal Science & Engineering, Inc. (CSE), under contract to the SCCC, used all available survey information and calculated the 10-year sand requirements for the state's beaches. The sand requirements are based on the initial nourishment required to restore a viable high-tide beach, plus the quantity required over ten years to make up for erosion losses each year.

Table 3 provides a summary of needs through the 1990s. The total length of shoreline requiring nourishment may exceed 42 miles (about 45 percent of the **developed** oceanfront). The total quantity of sand required is estimated at about 12.7 million cubic yards. The cost was estimated based on assumed availability and cost of sand as given in the table. Note in the Grand Strand, our estimate of sand required is about 60 percent lower than the USACE estimate. The quantities and costs for the area are based on the experience of the Myrtle Beach project, and we believe they are



adequate. Certainly, larger projects will provide more benefits in that area, but may not be absolutely necessary. Nourishment in the Grand Strand is cost effective because erosion rates are low, development is dense, and public access is good.

The southern half of the state is much more variable. For all intents and purposes, Isle of Palms, Sullivans Island, Kiawah Island, and the ends of Hilton Head Island will not require nourishment in the next decade. Those areas listed that will require nourishment generally have more complex problems because of their proximity to inlets. However, they will also have more choices of sand supply than the upper coast, because the inlets hold large sand reserves. Some of these projects will be done entirely with private funds--as they should be--because public access to the islands is excluded.

It is my sincere hope that the state will make a long-term commitment to beach nourishment. This will be an **ongoing process** in many areas. If combined with frequent monitoring and maintenance, the final element in a progressive strategy for shoreline management, future renourishment plans can be refined and made as cost effective as possible. Already, some highly innovative nourishment projects have been completed in South Carolina. Our shoreline's great diversity has allowed us to experience a great range of conditions. How we manage Folly Beach may have to differ from Kiawah Island, just one inlet away. My own experience tells me **the best projects will be ones that work with natural processes**--that take advantage of the sand-sharing system and, to the extent possible, tap our inlet sand reserves--the primary resource we have to save our beaches.

TABLE 1. Beach nourishment projects completed 1980-1988. [External (E) sand source or accreted shoals (AS)]

Funding	Locality (Completion Date)	Length (ft)	Volume (yd <sup>3</sup> )	Cost	Cost per yd <sup>3</sup>	Cost per ft	Method
Local (room tax) + emergency funding	Myrtle Beach (1987)	45,000	853,350	±4,750,000	5.55	104.63	Trucks (E)
Federal/inlet maintenance	Huntington Beach (1988)	10,000	450,000	est. 900,000	2.00	90.00	Dredge (E)
Town/state emergency fund	Pawleys Island (1988)	15,000	53,000	100,000	1.89	6.67	Pans (AS)
Private	Isle of Palms (1982-1983)	4,000	175,000	175,000	1.00	43.75	Pans (AS)
Private	Isle of Palms (1984)	5,000	350,000	1,000,000	2.86	200.00	Dredge (E)
Federal (6 projects)	Folly Beach Park (1982-1988)	1,000	305,560	est. 500,000	1.64	500.00	Dredge (E)
Private	Seabrook Island (1982)	3,000	75,000	±90,000	1.25	30.00	Pans (AS)
Private	Seabrook Island (1983)	6,500	230,000	±300,000	1.30	46.15	Pans (AS)
Private	Seabrook Island (1983)	est. 10,000	1,000,000	200,000	0.20	20.00	Inlet Relocation Trucks (E)
Federal	Hunting Island (1980)	20,000	1,412,700	est. 3,500,000	2.50	175.00	Dredge (E)
Private	Hilton Head Island (1980)	15,000	550,000	1,100,000	1.82	66.67	Dredge (E)
	[25.55 mi]	134,500 ft	5,454,610 yd <sup>3</sup>	\$12,615,000	\$2.31	\$93.79	

Source: Coastal Science &amp; Engineering, Inc., August 1989.

TABLE 2. Beach nourishment projects planned (circa 1988-1995). [External (E) sand source]

Funding	Locality (Design Date)	Length (ft)	Volume (yd <sup>3</sup> )	Cost	Cost per yd <sup>3</sup>	Cost per ft	Method
Federal(65%)/state/local	North Myrtle Beach <sup>(1)</sup> 1987 (USACE)	42,768	1,776,000	17,311,000	9.75	404.77	Trucks (E)
Federal(65%)/state/local	Myrtle Beach <sup>(1)</sup> 1987 (USACE)	46,464	1,931,000	16,856,000	8.73	362.78	Trucks (E)
Federal(65%)/state/local	Surfside/Garden City <sup>(1)</sup> 1987 (USACE)	30,096	1,250,000	11,081,000	8.86	368.19	Trucks (E)
Federal(73%)/state/local	Folly Beach <sup>(2)</sup> 1987 (USACE)	16,860	1,038,000*	5,562,500	5.36	329.92	Dredge (E)
Private	Seabrook 1989 (CSE)	6,000	700,000	1,500,000	2.15	250.00	Dredge (E)
Local(??%)/state	Hilton Head Island <sup>(3)</sup> 1988 Town (Olsen)	35,000	2,500,000	est. 12,500,000	5.00	357.14	Dredge (E)
	[33.5 mi]	177,188 ft	9,195,000 yd <sup>3</sup>	\$64,810,500	\$7.05	\$365.77	

(1) Totals for the 5-year project - first costs only

(2) Totals for the 5-year project (first cost) plus one 5-year renourishment

(3) Totals for an 8-year project - first costs only

Sources: U.S. Army Corps of Engineers; Coastal Science & Engineering, Inc.; Olsen Associates



TABLE 3. South Carolina beach nourishment requirements — estimated 10-year project needs (1990s).

Locality	Length (ft)	Volume (yd <sup>3</sup> )	Unit Cost	Total Cost	Cost per ft	Source/ Method
North Myrtle Beach	25,000	800,000	8.00	6,400,000	256.00	Trucks
Briarcliff	5,000	160,000	7.50	1,200,000	240.00	Trucks
Myrtle Beach (maintenance)	25,000	225,000	7.50	1,687,500	67.50	Trucks
Surfside	10,000	330,000	8.00	2,640,000	264.00	Trucks
Garden City	12,000	545,000	9.00	4,905,000	408.00	Trucks
Pawleys Island	15,000	900,000	7.00	6,300,000	420.00	Dredge/trucks
Debidue Island	8,000	400,000	9.00	3,600,000	450.00	Trucks*
Isle of Palms	2,000	75,000	1.20	90,000	45.00	Scrapers (AS)
Sullivan's Island	2,000	75,000	1.20	90,000	45.00	Scrapers (AS)
Folly Beach/FB Park	20,000	1,820,000	5.00	9,100,000	455.00	Dredge*
Seabrook Island	6,000	700,000	2.14	1,500,000	250.00	Dredge
Seabrook Island	12,000	175,000	2.00	350,000	29.17	Inlet Relocation
Edisto Beach	12,000	680,000	6.00	4,080,000	340.00	Dredge
Hunting Island	15,000	1,500,000	4.00	6,000,000	400.00	Dredge*
Fripp Island	12,000	1,000,000	2.00	2,000,000	166.67	Scrapers**
Hilton Head Island	35,000	3,000,000	5.00	15,000,000	428.57	Dredge*
Daufuskie	9,000	360,000	2.50	900,000	100.00	Scrapers (AS)
[42.6 mi]	225,000 ft	12,745,000 yd <sup>3</sup>	\$5.17	\$65,842,500	\$292.63	

\*High erosion rates in these areas suggest groins/breakwaters should be considered.

\*\*A larger scale dredging project involving 1,500,000 cubic yards at a cost of \$4.5 million has been proposed by CSE to develop a longer term solution.

Source: Coastal Science & Engineering, Inc., 1989

02592

# EXHIBIT

SOUTH CAROLINA BEACHFRONT MANAGEMENT ACT  
IMPACT ON PRIVATE PROPERTY RIGHTS

SEP 6 1989

NO. 1

STATE BUDGET & CONTROL BOARD

- I. Goals of BMA - Preservation of beaches for recreational, economic and tourism purposes.
- II. Methods employed - setbacks, restrictions on new construction and reconstruction, prohibition of seawalls, encouragement of beach renourishment, state and local comprehensive beach plans.
- III. The "Taking" Question
  - A. Nature of Cause of Action
  - B. Elements of Inverse Condemnation
  - C. Prior state and federal decisions
  - D. Property rights protected - damages recoverable
- IV. Beachfront Management Act vulnerabilities and possible solutions

02593

# EXHIBIT

SEP 6 1989

NO. 1

McNAIR LAW FIRM, P.A.

STATE BUDGET & CONTROL BOARD

Christopher McG. Holmes, born Charleston, South Carolina, August 3, 1949; admitted to bar, 1978, South Carolina. Education: University of South Carolina (B.A., 1973; J.D. 1978). Society of Wig and Robe. Member, University of South Carolina Law Review, 1976-78. Legal Counsel, 1979-1984, Deputy Director and General Counsel, 1984-85, South Carolina Coastal Council. Member: Charleston County and American Bar Associations; South Carolina Bar. Resident in Charleston Office.

C2594



# EXHIBIT

SEP 6 1989

NO. 1

CHRISTOPHER MCGOWAN HOLMES  
McNair Law Firm, P.A.  
140 East Bay Street  
Charleston, SC 29401

STATE BUDGET & CONTROL BOARD

Born: August 3, 1949  
Charleston, South Carolina  
Married, three children  
Residence in McClellanville, South Carolina

Educated in Columbia, South Carolina, public schools. Graduated University of South Carolina, B.A.-1973; J.D.-1978. Member South Carolina Law Review, Order of Wig & Robe, Charleston County Bar Association, South Carolina Bar Association, American Bar Association. 1979-1984, legal counsel to South Carolina Coastal Council. 1984-1985, Deputy Director-General Counsel, South Carolina Coastal Council. 1985-present, associated with McNair Law Firm, P.A. with area of practice emphasis on environmental, regulatory and administrative law.

02595

# EXHIBIT

RESUME

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

WILLIAM F. MARSCHER

- ADDRESS: 30 CALIBOGUE CAY HILTON HEAD, S. C. 29928
- BORN (1929) AND RAISED IN BEAUFORT, S. C.
- BEAUFORT HIGH SCHOOL.
- EAGLE SCOUT.
- CLEMSON (BSME).
- MASS. INSTITUTE OF TECHNOLOGY (MSME).
- GENERAL ELECTRIC COMPANY 1950-62 (ENGINEERING AND MGT. POSITIONS).
- MASS. INSTITUTE OF TECHNOLOGY 1962-69 (MEMBER OF TEAM WHICH DESIGN THE APOLLO LUNAR LANDING NAVIGATION AND GUIDANCE SYSTEM).
- TOWN GOVERNMENT IN MARBLEHEAD, MASS.
- SENIOR WARDEN GRACE EPISCOPAL CHURCH SALEM, MASS.
- SEA PINES COMPANY 1969-72 (LEADERSHIP IN OPPOSING BASF CHEMICAL PLANT).
- PURCHASED AND OPERATED ROSE SUPPLY CORP. 1973-82 (WHOLESALE PLUMBING AND ELECTRICAL SUPPLIES).
- SERVED VARIOUS CIVIC ORGANIZATIONS.
- ADVISORY DIRECTOR PEOPLES BANK AND BANKERS TRUST.
- HILTON HEAD TOWN COUNCIL 1985-PRESENT (MAYOR PRO-TEM. VERY ACTIVE IN GROWTH MANAGEMENT PLANNING, CAPITAL BUDGETING AND BEACH RESTORATION) RESTORATION).
- S. C. COASTAL COUNCIL BEACH MGT. BLUE RIBBON COMMITTEE (DRAFTING COMMITTEE).

# EXHIBIT

SEP 6 1989

NO. 1

TO THE SOUTH CAROLINA BUDGET AND CONTROL BOARD

STATE BUDGET & CONTROL BOARD

## INTRODUCTION

THANK YOU FOR THE OPPORTUNITY TO APPEAR BEFORE YOU AND DISCUSS A SUBJECT VERY DEAR TO MY HEART, THE STATUS OF BEACH MANAGEMENT RESEARCH AND PRACTICES.

## SOUTH CAROLINA'S BEACH MANAGEMENT PROBLEM.

DR. KANA HAS POINTED OUT THE GEOLOGICAL SITUATION ON THE S.C. COAST. HE HAS STATED THAT THE EROSION PROBLEM IS FOCUSED SQUARELY ON WHERE THERE IS COASTAL DEVELOPMENT.

THERE ARE 190 MILES OF SOUTH CAROLINA COAST OF WHICH 75 MILES IS HELD IN TRUST AS PARKS AND WILDLIFE PRESERVES WHERE EROSION IS OF LESS CONCERN, BEING CONSIDERED A NATURAL PROCESS.

THERE ARE 90 MILES OF COAST DEVELOPED CLOSE TO THE OCEANFRONT WITH 26 MILES OF THAT SERIOUSLY ERODING AT MORE THAN A FOOT A YEAR. EROSION IN THAT 26 MILES IS A PROBLEM BECAUSE IT THREATENS EXPENSIVE OCEANFRONT DEVELOPMENT BY EITHER SLOWLY WASHING THE DEVELOPMENT AWAY OR SLOWLY REMOVING THE STORM PROTECTING BEACH AND DUNES, CREATING VULNERABILITY TO EVEN SMALL STORMS.

THE DEVELOPED BEACHES WITH SERIOUS EROSION PROBLEMS ARE PARTS OF THE GRAND STRAND, PAWLEYS, FOLLY, EDISTO, FRIPP, HILTON HEAD AND DAUFUSKI. HUNTING ISLAND, ALTHOUGH NOT DEVELOPED, IS ERODING SEVERELY.

THERE ARE SIX PUBLICLY OWNED BEACH PARKS AND ONE LEASED PARK. OF THESE, FOLLY, EDISTO AND HUNTING ISLAND HAVE SERIOUS EROSION PROBLEMS.

## BEACH MANAGEMENT RESEARCH

GREAT STRIDES HAVE BEEN MADE IN BEACH MANAGEMENT RESEARCH IN RECENT YEARS. BEACH ENGINEERING HAS MOVED FROM BEING AN ART TO BECOME A SCIENCE. SOUTH CAROLINA DOES NOT LACK SCIENTIFIC KNOW-HOW BUT DOES LACK HAVING SPENT SUFFICIENT TIME AND MONEY TO UNDERSTAND THE EROSION PROBLEM AT EACH PARTICULAR BEACH AND DETERMINING THE MOST EFFECTIVE WAY TO SOLVE IT. EACH BEACH IS DIFFERENT. JUST DUMPING SAND AT AN ERODING BEACH MAY NOT BE THE ANSWER.

## STATE BEACH MANAGEMENT LEGISLATION.

WITH THE PASSAGE OF THE 1988 MODIFICATIONS TO THE 1977 TIDELANDS AND WETLANDS ACT, THE STATE TOOK A GIANT STEP FORWARD BY ADOPTING AND IMPLEMENTING A POLICY WHICH, IN TRUTH, RECOGNIZES THE STATES STEWARDSHIP RESPONSIBILITIES TO INSURE A HEALTHY BEACH/DUNE SYSTEM.

## WHAT ARE OTHER STATES DOING ABOUT THEIR BEACHES?

SOUTH CAROLINA IS NOT ALONE IN BECOMING AWARE OF THE VALUE OF ITS BEACHES. BEACH RESTORATION HAS BECOME COMMON PRACTICE ALONG THE COAST. FLORIDA, FOR INSTANCE, BUDGETED, IN 1989, OVER \$15 MILLION OF STATE FUNDS AND \$6 MILLION LOCAL MATCHING FUNDS FOR BEACH RESTORATION. THEY HAVE BEEN IN THE BUSINESS OF BEACH RESTORATION FOR MANY YEARS AND HAVE BEEN SPENDING AN INCREASING AMOUNT EVERY YEAR. BECAUSE FLORIDA STARTED WORKING WITH THE FEDERAL GOVERNMENT MANY YEARS AGO, IT WAS ABLE TO OBTAIN, IN 1989, \$12 MILLION OF FEDERAL FUNDS THROUGH THE CORPS OF ENGINEERS.

. 02597



AS PART OF THE BEACH RESTORATION PROGRAM, FLORIDA HAS ALSO FUNDED A PROGRAM FOR THE PURCHASE OF BEACH ACCESS AND PARKING FOR THE PUBLIC.

MANY OTHER STATES TO THE NORTH OF US HAVE ALSO INITIATED RESTORATION PROGRAMS COSTING TENS OF MILLIONS OF DOLLARS.

#### WHY SHOULD YOU BE CONCERNED ABOUT THE BEACH?

FIRST, THE BEACHES ARE A MAJOR SOURCE OF RECREATION FOR THE RESIDENTS OF SOUTH CAROLINA.

THE TOURIST INDUSTRY IS OF IMMENSE VALUE TO THE STATE OF SOUTH CAROLINA. TOURIST INDUSTRY REVENUE IN THE STATE IS SECOND ONLY TO TEXTILES AND EXCEEDS \$5 BILLION ANNUALLY. THE FOUR COASTAL COUNTIES PROVIDE 2/3 OF THAT AMOUNT WHICH IS \$3.3 BILLION LARGELY BECAUSE OF THE BEACHES.

THE STATE TAX REVENUE FROM THE FOUR COASTAL COUNTIES EXCEEDS \$250 MILLION WITH, UP TO NOW, VERY LITTLE OF THAT AMOUNT BEING RETURNED TO THE FOUR COUNTIES TO MAINTAIN THE BEACHES. THIS NEGLECT BY THE STATE CANNOT CONTINUE WITHOUT AFFECTING THE HEALTH OF THE TOURIST INDUSTRY.

#### A PERSPECTIVE ON BEACH RESTORATION FINANCES.

DR. KANA HAS POINTED OUT THAT OVER \$50 MILLION IS CURRENTLY NEEDED TO RESTORE THE STATES BEACHES. THIS AMOUNT, I ESTIMATE, WILL HAVE TO BE EXPENDED APPROXIMATELY EVERY 10 YEARS (I.E. AN AVERAGE EXPENDITURE OF \$5 MILLION A YEAR) TO KEEP THE BEACHES IN SHAPE, FOR BEACH RESTORATION DOES NOT STOP EROSION.

PUT IN \$50 MILLION AND RECEIVE BACK ABOUT \$250 MILLION EACH YEAR FOR 10 YEARS- NOT A BAD INVESTMENT AT AN ANNUAL RATE OF RETURN OF 500%.

IN 1988, THE LEGISLATURE APPROPRIATED, VIA THE BIENNIAL BOND BILL, \$10 MILLION TOWARDS RESTORING THE STATES BEACHES. THAT AMOUNT IS SIMPLY NOT ENOUGH. MORE IS DESPERATELY NEEDED.

LET ME EXPLAIN. ON JANUARY 1, 1987, A MINOR WINTER STORM HAPPENED TO HIT THE GRAND STRAND AREA AT HIGH TIDE. THE TOWN OF MYRTLE BEACH HAD RECENTLY RESTORED ITS BEACH AT A COST OF \$4 MILLION. ADJACENT TOWNS HAD NOT. DAMAGE WAS MINOR IN THE TOWN OF MYRTLE BEACH. HAD THE BEACH NOT BEEN RESTORED, THE ESTIMATED DAMAGE WOULD HAVE BEEN NEAR \$20 MILLION.

CERTAINLY, AN AVERAGE OF \$5 MILLION A YEAR IS A SMALL INVESTMENT TO PROTECT HUNDREDS OF MILLIONS IN REAL ESTATE AND AN INDUSTRY WHICH GENERATES \$250 MILLION IN TAXES ANNUALLY.

STATE BOND FUNDS ARE NOT NECESSARILY BEING SUGGESTED AS A SOURCE OF BEACH MANAGEMENT FUNDS. THERE ARE OTHER ALTERNATIVES. A SMALL PERCENTAGE OF THE TAX REVENUE GENERATED BY THE COASTAL COUNTIES COULD BE ANNUALLY RETURNED TO THE COAST. THE ACCOMMODATIONS TAX COULD BE INCREASED FOR IT IS ONE OF THE LOWEST IN THE NATION.

HOPEFULLY, WITHIN THE NEXT 3 TO 10 YEARS, SOUTH CAROLINA, LIKE FLORIDA, WILL BE ABLE TO OBTAIN FEDERAL FUNDS.

MOST CERTAINLY, IT IS NOT APPROPRIATE TO IMPOSE ADDITIONAL RESPONSIBILITY FOR PROVIDING RESTORATION FUNDS ON THE LOCAL GOVERNMENTS, ALREADY HEAVILY BURDENED AS A RESULT OF THE TOURIST INDUSTRY.

#### A PERSPECTIVE ON BEACH MANAGEMENT LEGISLATION.

THE LEGISLATURE DID A PRETTY GOOD JOB IN TRANSCRIBING THE BLUE RIBBON COMMITTEE RECOMMENDATIONS INTO LEGISLATION. FOR THE MOST ALL OF THE RECOMMENDATIONS WERE IMPLEMENTED.

THE LEGISLATURE WAS, IN ONE AREA, TOUGHER THAN THE COMMITTEE. IT INCORPORATED A 20 FOOT DEAD ZONE IN WHICH NO BUILDING OR REPAIR COULD TAKE PLACE. THIS WAS NOT RECOMMENDED BY THE COMMITTEE BECAUSE IT WAS THOUGHT TO RESULT IN A TAKING BY INVERSE CONDEMNATION.

IN A SECOND AREA, THE LEGISLATURE WAS MUCH MORE LENIENT THAN THE BLUE RIBBON COMMITTEE RECOMMENDED. THIS WAS TO GRANDFATHER EXISTING PLANNED DEVELOPMENTS FROM MAJOR PORTIONS OF THE LAW.

THE RESULT OF THIS ACTION COULD BE THE CONSTRUCTION OF LARGE CONDOMINIUMS VERY NEAR THE HIGH WATER MARK, THE BASIC MISTAKE MADE IN THE PAST.

THIS WAS, ALSO, NOT RECOMMENDED BY THE BLUE RIBBON COMMITTEE FOR IT IS CONTRARY TO THE STATE POLICY OF RETREAT AND WAS PURELY THE RESULT OF BOWING TO THE PRESSURE OF A WELL FUNDED LOBBYING EFFORT.

THE SENATE, IN THE SPRING OF 1989, ADOPTED A SET OF AMENDMENTS TO THE BEACH MANAGEMENT ACT, SUGGESTED BY THE COASTAL COUNCIL WHICH, I BELIEVE, WILL SOLVE A MOST ALL OF THE TAKING PROBLEMS. IN ESSENCE THE SENATE BILL WILL:

ELIMINATE THE DEAD ZONE.

ALLOWING THE COUNCIL SOME DISCRETION IN SETTING THE BASELINE WHEN THE SHORELINE HAS BEEN ALTERED.

GIVE THE COASTAL COUNCIL SOME DISCRETION, UNDER STRICT GUIDELINES, TO REVIEW AND GRANT A PERMIT TO A PROPERTY OWNER AFFECTED IN AN UNREASONABLE MANNER BY THE BASELINE, SETBACK LINE OR EROSION RATE.

ALLOWS, UPON PETITION, THE MOVEMENT OF THE BASELINE TO THE LANDWARD EDGE OF A REVETMENT IF THERE IS A SUCCESSFUL ONGOING COUNCIL APPROVED BEACH NOURISHMENT PROGRAM.

REQUIRES THAT AN OWNER MUST BUILD OR REBUILD BEHIND THE 30 YEAR SETBACK LINE.

I BELIEVE THE SENATE BILL WILL SOLVE MOST OF THE TAKING PROBLEMS AND, INCIDENTALLY, MAKE THE BEACH MANAGEMENT BILL MORE CONSISTENT WITH THE BLUE RIBBON RECOMMENDATIONS.

UNFORTUNATELY, THE SENATE BILL DOES NOT ADDRESS THE GRANDFATHERING OF THE EXISTING PLANNED DEVELOPMENTS.

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IN SUMMARY, I BELIEVE IT WOULD BE IN THE BEST INTERESTS OF THE PEOPLE OF SOUTH CAROLINA AND THE STATE IF THE LEGISLATURE WOULD, IN 1990, DO THE FOLLOWING:

1- PROVIDE ADDITIONAL FUNDS FOR THE BEACH RESTORATION.

\$10 MILLION WILL BE ALLOCATED TO LOCAL GOVERNMENTS DURING THE MONTH OF SEPTEMBER. PROJECTS TOTALING \$30 MILLION WERE IDENTIFIED BUT SOME WERE NOT ELIGIBLE AND MANY WERE NOT READY TO USE THE FUNDS. THE AMOUNT OF MONEY NEEDED NEXT YEAR WILL BE DETERMINED BY THE COASTAL COUNCIL SOON.

2- FUND THE COASTAL COUNCIL ADEQUATELY TO ACCOMPLISH ITS MISSION. THERE IS MUCH MORE DATA AND ANALYSIS OF THE SOUTH CAROLINA COASTAL PROCESSES NEEDED SO THAT RESPONSIBLE BEACH RESTORATION DECISIONS CAN BE MADE. THIS WILL HASTEN THE BEACH RESTORATION PROCESS, RESULT IN SOUNDER PROJECTS AND IN THE LONG RUN PRODUCE A MORE HEALTHY TOURIST ECONOMY.

3- FUND THE COASTAL COUNCIL TO IMPLEMENT THE LAW REQUIRING THEM TO ESTABLISH GUIDELINES FOR THE COAST IN THE EVENT OF A MAJOR HURRICANE DISASTER.

4- ESTABLISH A POLICY FOR AND IMPLEMENT THE PURCHASE OF MORE PUBLIC BEACH PARKS, BOTH LARGE AND MANY SMALL ONES.

5- MAKE IT STATE POLICY TO AGGRESSIVELY SEEK FEDERAL FUNDS FOR BEACH RESTORATION THROUGH THE CORPS OF ENGINEERS. THIS SHOULD BE A STATE EFFORT LED BY THE COASTAL COUNCIL WITH THE COOPERATION OF THE STATE'S FEDERAL LEGISLATORS. THIS PROCESS IS SLOW FOR IT REQUIRES 5 TO 17 YEARS TO BRING A CORPS OF ENGINEERS PROJECT TO COMPLETION.

6- ELIMINATE THE PLANNED DEVELOPMENT GRANDFATHERING SECTION OF THE BEACH MANAGEMENT LAW.

7- ADOPT THE 1989 SENATE PASSED AMENDMENTS TO THE BEACH MANAGEMENT ACT.

AND THAT'S ALL!

BILL MARSCHER  
SEPT. 4, 1989

02600



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BILL MARSCHEK  
SEPT. 4, 1989

02600

# EXHIBIT

SEP 6 1989 NO. 1

## Biographical Sketch for David J. Cowen STATE BUDGET & CONTROL BOARD

David J. Cowen is the director of the Humanities and Social Sciences Computer Laboratory and Professor of Geography at the University of South Carolina. He has been actively involved in geographical data handling for more than 20 years. He currently serves as the U.S. Delegate to the International Geographical Union Commission on GIS. He also is a member of the National Research Council Committee Advisory to the USGS and on the editorial boards of two major journals. He has a wide range of experience with GIS applications at every level of government.

RECEIVED  
AUG 25 1989  
DIVISION OF ENERGY  
AGRICULTURE & NATURAL RES.

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### 1. Personal Data

Name: David J. Cowen  
Institution: University of South Carolina  
Address: Columbia, South Carolina 29208

S.S. Number: 085-34-5842  
Department: Hum and Soc Sci Computer Lab  
Telephone: (Office) (803) 777-7840  
(Home) (803) 787-4757

### 2. Educational Background -

Ph.D. in Geography - June 1971 The Ohio State University  
M.A. in Geography - June 1968 S.U.N.Y. at Buffalo  
B.A. in Geography - June 1966 S.U.N.Y. at Buffalo

### 3. Professional Experience -

Director - 1978 to present, Humanities and Social Sciences Computer Laboratory, University of South Carolina (Computer Center for College of Humanities and Social Sciences)  
Professor of Geography - 1981 to present, University of South Carolina,  
Acting Vice President, Computer Services Division, January to August, 1988  
Associate Professor of Geography - 1974 to 1981, University of South Carolina  
Assistant Professor of Geography - 1971 to 1974, University of South Carolina  
Instructor of Geography - 1970 to 1971, University of South Carolina

### 4. Awards and Honors: none

### 5. Theses and Dissertations Directed:

Theses: (total 26)

Buchanan, Paul "Analysis of Digital Coastline Data on Hilton Head Island" (in progress)  
Martin, John "Measuring Soil Loss Using Digital Elevation Models" (in progress)  
Shinar, William "Analysis of the Distribution of The Chemical Industry in South Carolina" (in progress)  
Love, Scott "A Hypercard-Based Workstation for a Distributed GIS Network", 1988  
Denk, Alison "The USGS Digital Line Graph in Local Government Geographical Information Systems: An Accuracy Assessment", 1988  
Porter, Dwayne "Use of Land Use and Land Cover data in a Geographic Information System to Control the Spatial Disaggregation of Population Data", 1988  
Keyes, Lisa "Comparison of Clustering Procedures for Grouping Address Locations in an Urban Setting: A GIS Tool", 1987  
Smith, William "Analysis of the Accuracy of Wetlands Delineation Comparing Thematic Mapper and Digital Line Graph Data" 1987

Dissertations:

Lanter, David "A System for Automatically Handling Lineage within a GIS" (in progress)  
Porter, Dwayne "Analysis of the Cumulative Impacts of Wetland Permit Decisions in South Carolina" (in progress)

### 6. Professional Activities:

(a) Office held/committee service in professional organizations  
United States Representative, International Geographical Union, Commission on GIS, 1988-1992  
Member, National Research Council Committee Advisory to USGS, 1987-1990  
Chairman, Association of American Geographers, GIS Specialty Group, 1988  
Chairman, South Carolina Mapping Advisory Committee, 1988  
Chairman, American Congress on Surveying and Mapping, Committee on Automation, 1984-85  
Program Committee, Second International Symposium on Spatial Data Handling, 1986

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(b) Grant Proposal Review - last three years

National Science Foundation - Three  
NASA Center For Mapping, Ohio State university, 1987  
United States Fish and Wildlife Service, 1989

(c) Publications, Editorial/Reviewing Service

Member of Editorial Committee of the International Journal of Geographical Information Systems. 1986  
-to Present

Member of Editorial Board of American Cartographer, 1985 to Present

7. Research Proposals Submitted (1986 - present) See list of Funded Proposals

National Center for Geographical Analysis and Information, 1988 - NSF \$5,000,000, rejected

8. Research Grants Received

Development of A GIS for Reapportionment, S.C. Budget and Control Board, 24100-G402, \$63,559, July 1989- June 1993

S.C. Infrastructure/Economic Development Project, S.C. Development Board, 24100-G107, \$318,000, October, 1988 to September 1993.

South Carolina Infrastructure Planning Project, USC Cutting Edge Fund, 24100-A900, \$72,000, November, 1988 to July 1989.

GIS Database Research for Edisto Basin, S.C. Water Resources Commission, 24100-G106, \$25,000, July 1988 - June 1989.

Geographical Database Development, Sea Grant Consortium, 24100-F106, \$5,000, 1987.

Timberstand Evaluation Model Using Thematic Mapper and DLG Data, NASA, Center for Mapping, Ohio State University, 24100- F105, \$62,000, 1987-88.

9. Research Publications:

Geographical Information Systems. With N. Christman, P. Fisher, M. Goodchild, and D. Mark, in Geography in America, Ed. G. Gaile and C Willmott, Columbus: Merrill Publishing 1989

"A Versatile Mapping System for the 1:100,000 DLGs" with T. White Proceedings AUTO-CARTO 9 pp. 705-714, 1989

"GIS vs CAD vs DBMS" Photogrammetric Engineering and Remote Sensing Vol IIV, # 11 pp. 1551-1555, 1988

"The Integration of Thematic Mapper and DLG Data for Timber Stand Assessment" with J. Jensen, Proceedings Third International Symposium on Spatial Data Handling pp. 39-55, 1988

"A Hyper-Card Based Workstation for a Distributed GIS Network" with S. Love Proceedings GIS/LIS'88 pp. 285-294, 1988

"An Integrated PC Based GIS for Instruction and Research" Proceedings, AUTO CARTO VIII, pp. 411-420 (with B. Rasche). 1987

"A Versatile Cartographic Output System for Grid Cell GIS" with J. Wojcik and M. Hodgson 1987 Technical Papers ASPRS Vol. 5, pp. 75-81, 1987.

02603

"Computer Mapping vs. GIS: Implications for Applied Geography" Papers and Proceedings of Applied Geography Conference Vol 10. pp.43-51. 1987

#### 10. Research Papers

##### (a) Invited Papers/Seminars/Colloquia

"Using GIS to Improve Economic Development Decision Making" Congressional Breakfast, Washington D.C. June 16, 1989.

"The Users Perspective on TIGER and DLG-E Data Structures" Invited presentation at the USGS/Bureau of Census Symposium on Data Structures, Airlie, Va. March 28, 1989.

"GIS Definitions and Trends" North Carolina GIS Conference Raleigh, N.C. January 11, 1989.

"The University and State Development Board Economic Development System" Visions of the Urban South Conference, Columbia S.C. April 7, 1989

"ABC's of GIS, National Academy of Sciences, GIS Symposium, Denver, Sept. 26, 1988.

"An Integrated PC Based GIS for Instruction and Research" AUTO CARTO VIII, March 2, 1987.

GIS Options, North Carolina GIS Conference Raleigh, NC, Jan. 7 - 8, 1987.

"Changing Population Profiles of South Carolina" S.C. State Legislature, Breakfast, January 22, 1987

##### (b) Contributed Papers

"GIS and Industrial Location Decision Making" Association of American Geographers, Baltimore, Mar, 20, 1989.

"A Versatile Mapping System for the 1:100,000 DLGs" AUTO-CARTO 9  
Baltimore, April 5, 1989

"The Integration of Thematic Mapper and DLG Data for TimberStand Assessment" Third International Symposium on Spatial Data Handling, Sydney Australia, August 18, 1988.

"A Hyper-Card Based Workstation for a Distributed GIS Network" GIS, LIS '88 San Antonio, Dec. 1, 1988.

"A GIS Approach to School Redistricting" Association of American Geographers, April 23, 1987.

"A Versatile Cartographic Output System for a Grid Cell GIS" ASPRS Annual Meeting, March 1, 1987.

02604

VITAE  
November, 1988

DAVID J. COWEN  
Professor of Geography  
Director, Humanities and Social Sciences Computing Lab

Born November 15, 1944 in Rochester, New York  
Married - two children  
Office: (803) 777-6803

I. DEGREES:

B.A. in Geography - S.U.N.Y. at Buffalo - June 1966  
M.A. in Geography - S.U.N.Y. at Buffalo - June 1968  
Ph.D. in Geography - Ohio State University - June 1971

II. POSITIONS HELD:

1970 - 1971 Instructor - University of South Carolina  
1971 - 1974 Assistant Professor-University of South Carolina  
1974 - 1981 Associate Professor-University of South Carolina  
1981 - Professor - University of South Carolina  
1978 - Director - Humanities and Social Sciences Computer  
Laboratory, University of South Carolina (Computer Center  
for College of Humanities and Social Sciences)  
1988 (Jan-Aug) Vice President, Computer Services Division

III. SIGNIFICANT NON-ACADEMIC POSITIONS

1987 - 1990 Member, National Research Council Committee Advisory to  
USGS.  
1987 - 1988 Chairman, Association of American Geographers, GIS  
Specialty Group.  
1986 - Member of Editorial Committee of the International  
Journal of Geographical Information Systems.  
1985 - Member of Editorial Board of American Cartographer  
1988 - Chairman, S.C. Mapping Advisory Committee  
1985- Corresponding Member: International Geographical Union  
Commission on Geographic Data Processing and Sensing  
1980 - State Director, National Computer Graphics Association  
1984 - 1985 Chairman, American Congress on Surveying and Mapping -  
Committee on Automation.  
1985 - Fellow, Strom Thurmond Institute-Clemson University.  
1986 - 1987 Chairman, Association of American Geographers, Census  
Advisory Committee.  
1986 - Program Committee, Second International Symposium on  
Spatial Data Handling  
1987 - Member, Governor's Task Force on Economic Development.  
1987 - Member, Science Advisory Committee, International GIS  
Conference.



#### IV. PAPERS PRESENTED BY INVITATION:

- a. "Non-Academic Job Opportunities in Geography - A South Carolina Perspective," Special Session, Association of American Geographers, 1976.
- b. "Automated Geographical Data Handling in the Coastal Plains" - AUTO-CARTO III 1978. (Published in Proceedings.)
- c. "Coastal Zone Mapping: The South Carolina Experience," - Coastal Zone Mapping Symposium 1978 (Published in Proceedings).
- d. "Introductory Computer Mapping Instruction at the University of South Carolina," Harvard Computer Graphics Week 1978.
- e. "The Evolution of the South Carolina Coastal Mapping Program," Harvard Computer Graphics Week 1978.
- f. "State Level Perspectives on Land-Related Information Systems," Applied Geography Conference, Binghamton, N.Y. September 1979.
- g. "Development of Training Materials for GIRAS," Special Session on USGS cooperative programs Southeastern AAG Meetings, Nashville, Tennessee, November 19, 1979.
- h. "The South Carolina Geographical Information System: Role of the State and the University in System Implementation," Opening Session Harvard Computer Graphics Conference, 1979.
- i. "Integration of Digital Land Use Data in South Carolina," AAG Conference on Land Use Issues of Non-Metropolitan America, College Park, Md., June 25, 1980.
- j. "Evaluating DIDS in a State Government Environment," Harvard Computer Graphics Week Cambridge, July 28, 1980.
- k. "Living with DIDS: Impressions after Six Months," Harvard Computer Graphics Week Cambridge, Mass. July 29, 1981.
- l. "Automated Mapping of 1980 Census Data," Harvard Computer Graphics Week Cambridge, Mass. July, 1982.
- m. "Using Standard Output Formats for Distributed Geographic Data Handling," NSF Sponsored US/Australian Workshop on Design and Implementation of Computer-Based Geographical Information Systems Honolulu, Hawaii June, 1982.
- n. "Applications of LUDA/GIRAS Data System in South Carolina," Workshop on Applications of USGS Land Use/Land Cover Data Illinois Mapping Advisory Committee Springfield, Illinois, December, 1982.
- o. "The Use of Color Graphics Systems to Display Geographical Information" International Computer Color Graphics Conference Tallahassee, Florida March 12, 1983. (with Peter Oppenheimer).
- p. Rethinking DIDS: The Next Generation of Interactive Color Mapping Systems AUTO-CARTO VI, Ottawa, Ontario, October, 1983.
- q. "Barriers to Successful Export of PC Based GIS" ACSM Washington, DC March 18, 1986.
- r. "An Integrated PC Based GIS for Instruction and Research" AUTO CARTO VIII, March 2, 1987.

#### V. WORKSHOPS AND SPECIAL PRESENTATIONS:

- a. "The Industrial Location Search Process," Invited Presentation to the Institute of Industrial Development Basic Industries Development Course, Chapel Hill, N.C., 1973, 1974, 1975.
- b. "Breakthroughs in Energy and Natural Resource Management," Harvard University Laboratory for Computer Graphics Information Management

- Program. Houston Nov. 26, 27, 1979, Washington, D.C. April 1, 1980, Harvard University, June 17, 1980, Sept. 28, 1980, Chicago, Feb 18, 1981, Wash., D.C. Apr. 28, 1981.
- c. "Computer Mapping and Environmental Decision Making," Environmental Design Research Assoc. Charleston, S.C. March 6, 1980.
  - d. "Recent Hardware and Software Innovations in Computer Graphics," State D.P. Managers Assoc. April 14, 1981 Hilton Head.
  - e. "The Decision Information Display System," South Carolina County Assessors Meeting, May 1, 1981.
  - f. "Computer Graphics and Geographical Information Systems," University of Minnesota Cartography Seminar Series, Oct. 23, 1980.
  - g. "Implementation of a Successful Geographical Information System," U.S. Fish & Wildlife Service, Slidell, La., Mar. 30, 1981.
  - h. Mini-Seminar on Geographical Information Systems 1980 Harvard Computer Graphics Week, July 28, 1980, July 28, 1981.
  - i. "Availability of 1980 Census Materials," S.C. Chapter American Planning Association, April 23, 1982.
  - j. "Evolution of Computer Mapping," S.C. State Mapping Advisory Committee Jan., 1982.
  - k. "Use of DIDS for County Level Applications" S.C. City- County Managers Association, Myrtle Beach, S.C. June 5, 1981.
  - l. "Sorting Out Data Responsibilities" State Statistical Survival in the 1980s National Governor's Association Arlington, Va March 30, 1983 (invited moderator).
  - m. S.C. Water Week Digital Water Resource Data, October 27, 1983.
  - n. S.C. Mapping Advisory Committee Demonstration of IBM-PC Computer Mapping System.
  - o. Northern Illinois University - Trends in Computer Mapping and Digital Land Use Analysis. Feb. 1, 1984.
  - p. U.S. Fish and Wildlife Service, Micro-computer Based Geographical Information Systems. Slidell, LA, March 12, 1984.
  - q. Governor's Council on National Resources and the Environment. "Current Status of Digital Land Use Mapping. March 5, 1984.
  - r. U.S. State Department - Office of the Geographer - Evaluation of Existing Computer Mapping Activities. June 21, 1984.
  - s. Implementation of UDMS - Curacao, Netherlands Antilles, Sept. 1984.
  - t. S.C. Census Data Center Meeting. "Census Mapping Activities" Hilton Head Island, Nov. 1984.
  - u. East Carolina University - Three Presentations on Automation in Geography, April 12, 13, 1984.
  - v. GIS Training for Managers, Dept. of Interior Workshop, Colorado State Univ., Aug. 13, 1986.
  - w. Census Geography Activities at USC, State Census Data Center meeting, Hilton Head, Nov. 7, 1986.
  - x. GIS options, North Carolina GIS Conference Raleigh, NC, Jan. 7 - 8, 1987.
  - y. ABC's of GIS, National Academy of Sciences, GIS Symposium, Denver, Sept. 26, 1988.

#### VI. REPORTS PREPARED FOR RESEARCH PROJECTS:

- a. The Changes In The Location Of Industrial Activity in Franklin County, 1954-1968. Report published by the Columbus, Ohio Chamber of Commerce, August, 1970.

- b. 1970 Census Data - Population and Household Characteristic - A Graphic Presentation. Published by Central Midlands Regional Council, 1972 (with P. E. Lovingood, Jr.).
- c. Development and Applications of the South Carolina Computerized Land Use Information Systems, South Carolina Land Resources Conservation Commission, 1976.
- d. Coastal Plains Regional Resource Information Systems Study, S. C. Wildlife and Marine Resources Department in Cooperation with the S. C. Budget and Control Board, 1977.
- e. Final Report Evaluation of a DIDS Remote Terminal in a State Government: Results of the South Carolina Pilot Project submitted to NASA February, 1983.
- f. Conceptual Models and Energy Analyses of River Flow Modifications - Final Report to US Fish and Wildlife Service, December 1983. 63 pp (Co-author).
- g. GIRAS and Digital Land Use and Land Cover Files. Report to US Geological Survey Sept. 15, 1983, 46 pp.
- h. Los Angeles Land Use Case Study GIRAS/MAP Interface - Report to US Geological Survey April 1984, 43 pp.
- i. The Situation and Outlook for Water Resource Use in S.C. 1985-2000. Strom Thurmond Institute, Clemson University, 1985 - Co-author.
- j. South Carolina Water Resources Information System Applications SBS Lab 1987.
- k. Establishing a Long Term Water Resource Database. SBS Lab 1987.

VII. PUBLISHED MATERIAL:

- a. Industrial Atlas 1971 and Industrial Atlas 1972. Published by South Carolina State Development Board 1972 and 1973 (with P. E. Lovingood, Jr.).
- b. Agricultural Atlas. Published by Clemson Agriculture Extension Service in Cooperation with the U.S. Department of Agriculture, 1972 (with P. E. Lovingood, Jr.).
- c. "Multivariate Analysis of Changing Crop Livestock Regions," International Geography 1972. Published by International Geographical Union (with P. E. Lovingood, Jr.).
- d. "The Use of the Computer in Geographic Instruction As a Means of Stimulating Interest in Statistical Methods," Proceedings of the 1972 Conference on Computers in Undergraduate Curricula (with P. E. Lovingood, Jr.).
- e. "Neighborhood Analysis of the Columbia, South Carolina: SMSA Problems and Solutions" Proceedings of the Urban and Regional Information Systems Association, 1973 (with P. E. Lovingood, Jr.).
- f. "Spatial Aspects of Drug and Alcohol Abuse in Columbia, S.C." Proceedings of the Urban and Regional Information Systems Association, 1974 (with J. Burwell).
- g. "Coastal Zone Mapping: The South Carolina Experience" Proceedings



Coastal Mapping Symposium, Published by American Society of Photogrammetry, 1978.

- h. "The Evolution of the South Carolina Coastal Mapping Program" (with G. Walters, K. Feinberg, M. Holland and A. Vang) and "Introductory Computer Mapping Instruction at the University of South Carolina"--Both in Computer Mapping in Education Research and Medicine, Harvard Library of Computer Mapping 1979 Collection Harvard University Lab for Computer Graphics and Analysis 1979.
- i. "A SAS-VSPC Interface for Handling Library Functions" Proceedings of the Forth Annual SAS Users Group, International Conference Raleigh: SAS Institute, Inc., 1979 (with S. Cowen).
- j. "Automated Mapping of South Carolina's Coastal Zone," Proceedings of the American Congress on Surveying and Mapping 1979 (with P. Crosley and M. Holland).
- k. "Automated Geographical Data Handling in the Coastal Plains" Proceedings AUTO-CARTO III, U.S. Geological Survey, 1979.
- l. "Making Dime User Friendly" in More for Less: Information Systems in An Era of Limits. Edited by Rolf R. Schmitt. Urban and Regional Information Systems Association 1979 (with W. Lynn Shirley and Larry D. Smith).
- m. "South Carolina's Hybrid Geographical Information System," in More for Less: Information Systems in an Era of Limits. Urban and Regional Information Systems the Assoc. Meeting, edited by Rolf R. Schmitt (with Powel Crosley, V. and Michael Holland) 1979.
- n. "Managing Energy and National Resources" Information Interface, Vol. 5, #2, Summer 1980.
- o. "The South Carolina Geographical Information System: The Role of the University in System Implementation" Urban, Regional and State Applications in Computer Mapping, Cambridge: Harvard University Lab for Computer Graphics, 1980 (with A. Vang and Senator J. Waddell).
- p. "Trends in the Location of American Industry," Industrial Location and Community Development by Barry Moriarity, Chapel Hill: University of North Carolina Press. May, 1980.
- q. "Evaluating DIDS in a State Government Environment" Computer Mapping Applications in Urban, State and Federal Government. Harvard Library of Computer Graphics Vol. 16. Cambridge: Harvard Lab for Computer Graphics and Spatial Analysis 1981.
- r. "The 1980 Census: Mapping Activities in South Carolina," Proceedings of the Fall Meeting ACSM 1982 (with Michael Holland).
- s. "Beyond Hardware and Software: Implementing a State- Level Geographical Information System," In Computer Graphics and

Environmental Planning. Edited by Eric Teicholz and Brian J. L. Berry Englewood Cliffs: Prentice Hall, 1983 (with A. Vang and Senator J. Waddell).

- t. "Interfacing DIDS for State Government Applications," Proceedings of AUTO-CARTO 5 Falls Church: ASP/ACSM, 1983 (with P. Oppenheimer and R. Rouse).
- u. "Study of Two Remote Sensing Methods for Evaluating Land Cover in South Carolina," in Proceedings International Society for Photogrammetry and Remote Sensing Falls Church: ASP/ACSM, 1983 (with G. Minick).
- v. "Integration of Digital Land Use Data in South Carolina," in Beyond the Urban Fringe: Land Use Issues of Nonmetropolitan America Minneapolis University of Minnesota Press. Spring, 1983.
- w. "The Use of Color Graphics Systems to Display Geographical Information" Proceedings of the 1983 International Computer Color Graphics Conference Florida State University March, 1983 (with P. Oppenheimer).
- x. "Using Standard Output Formats for Distributed Geographical Data Handling" The Design and Implementation of Computer-Based Geographic Information Systems Proceedings of a Joint U.S./Australian Workshop Amherst N.Y.: IGU Commission on Geographical Data Sensing and Processing 1983.
- y. "Rethinking DIDS: The Next Generation of Interactive Color Mapping Systems." Proceedings of the 6th International Symposium on Automated Cartography. Ottawa, Canadian National Committee, pp. 53-58.
- z. "Automated Geography and the DIDS Experiment" Professional Geographer Vol 35 #3 pp. 339-340.
- aa. Book Review - Environmental Data Use in Computer Assisted Data Handling Systems" Professional Geographer, Vol 34 #4 p. 359.
- ab. "Decision Information Display System" The American Cartographer. Supplement to Vol 11 Summer 1984. pp. 26- 27.
- ac. "Choropleth Mapping with USGS Land Use/Land Cover Digital Files: A GIRAS to SAS/GRAPH Interface." Proceedings of the 9th Annual SAS Users Group International Conference. pp.224-28 (With Lynn Shirley, Randall Bullard and Pete Oppenheimer.)
- ad. "Using Color Bivariate Mapping Procedures to Model Spatial Processes" Proceedings of the International Symposium on Spatial Data Handlings, Zurich, Switzerland, August 1984. pp. 349-370 (J. Booth, C. Heivly and P. Oppenheimer).
- ae. "Rethinking DIDS: The Next Generation of Interactive Color Mapping Systems" Cartographica Vol 21, # 2 & 3, Monograph 32-33. 1984. pp.

89-92.

- af. "Alternative Approaches to Display of USGS Land Use/Land Cover Digital Data", Proceedings of AUTO CARTO VII. Mar. 11-14, 1985. pp. 116-125.
- ag. "Integrating US Geological Survey DLGs into a Low Cost GIS" Proceedings US Forest Service GIS Workshop - ACSM 1986 (with T. Wallace, M. Hodgson and W. Shinar).
- ah. "Adding Topological Strudture to PC-based CAD Databases" Proceedings, Second International Symposium on Spatial Data Handling, Seattle WA, July 1986 (with M. Hodgson, L. Santure and T. White).
- ai. "PC CAD Manages Geographical Data" Computer Graphics World Vol 9, #7 July, 1986, pp. 38-42.
- aj. "A SAS UTM Projection for Geographical Information Systems Applications" Proceedings - SAS Users Group International 1987. pp. 968-973 (with J. Roberts).
- ak. "An Integrated PC Based GIS for Instrucition and Research" Proceedings, AUTO CARTO VIII, 1987 pp. 411-420 (with B. Rasche).
- al. "A Versatile Cartographic Output System for Grid Cell GIS" 1987 Technical Papers ASPRS Vol. 5, 1987 pp. 75-81. (with J. Wojcik and M. Hodgson).
- am. "Computer Mapping vs. GIS: Implications for Applied Geography" 1987. Papers and Proceedings of Applied Geography Conference Vol 10. pp.43-51.
- an. "GIS vs. CAD vs. DBMS: What are the Differences/" 1987 Proceedings GIS 1987, Second Annual International Conference on GIS. pp. 46-56. Reprinted in Photogrammetric Engineering and Remote Sensing, Vol. LIV, No 11, pp 1551-1555. "The Integration of Thematic Mapper and Digital Line Graphs for Timber Stand Assessment." Proceedings Third International Symposium on Spatial Data Handling. Sydney, Australia 1988.

VIII. MASTERS THESES DIRECTED: 21

IX. Ph.D. COMMITTEES 10

X. RESEARCH GRANTS

- a. Fifteen grants with state and local public agencies in South Carolina \$80,000.
- b. US Geological Survey, Development of Training Materials for GIRAS \$20,000.
- c. NASA Evaluation of the Domestic Information Display System at



the State Level \$35,000.

- d. NSF-EPSCOR Development of the Social and Behavioral Sciences Laboratory into a Major Research Support Facility 1980-1984 \$240,000.
- e. U.S. Fish and Wildlife Service "Research Analysis of Management Alternatives for Water Release Strategies for the Cooper River Rediversion Project: Application Study of the Sea Islands Coastal Region of Georgia and South Carolina," \$115,000 (one of several investigators).
- f. Strom Thurmond Institute - "The Situation and Outlook for Water Resource Use in South Carolina with Projections to the Year 2000." \$150,000 subcontract through USC College of Business Administration. 1984-87.
- g. Atlantic Softdrink Bottling Co. - Development of a PC-CAD System for Analyzing Customer Data, \$3,000.
- h. Richland School District I - Development of a GIS for School Redistricting, \$15,000, 1986.
- i. SC Water Resources Commission - Assistance with Development PC-CAD System, \$10,000, 1986.
- j. Prime Computer Corporation - Equipment Donation for GIS \$63,595, 1987.
- k. Sea Grant Consortium - Geographical Database Development, \$5,000, 1987.
- l. NASA - Ohio State University Center for Mapping. Timberstand Evaluation Model Using Thematic Mapper and DLG Data - \$62,000 1987-88 with J. Jensen.
- m. Software Donations - various vendors (GIMMS ESRI, Criterion, Aeronoa,) Estimated Value \$125,000.
- n. SC Development Board - GIS for Industrial Site Selection, \$10,000, 1987.
- o. S.C. Development Board - S.C. Infrastructure/Economic Development Projects, \$318,000.
- p. S.C. Water Resources Commission - GIS for Edisto River Basin, \$25,000.

TOTAL \$1,276,595.

SOUTH CAROLINA  
GEOGRAPHICAL INFORMATION SYSTEMS  
STATUS AND NEEDS

EXHIBIT

SEP 6 1989

NOL 1

STATE BUDGET & CONTROL BOARD



DATA ANALYSIS DIVISION  
GEOGRAPHIC INFORMATION SYSTEMS  
SEP 1989

DR. DAVID J. COWEN  
HUMANITIES AND SOCIAL SCIENCES COMPUTER LAB  
AND  
DEPARTMENT OF GEOGRAPHY  
UNIVERSITY OF SOUTH CAROLINA  
SEPTEMBER 5, 1989

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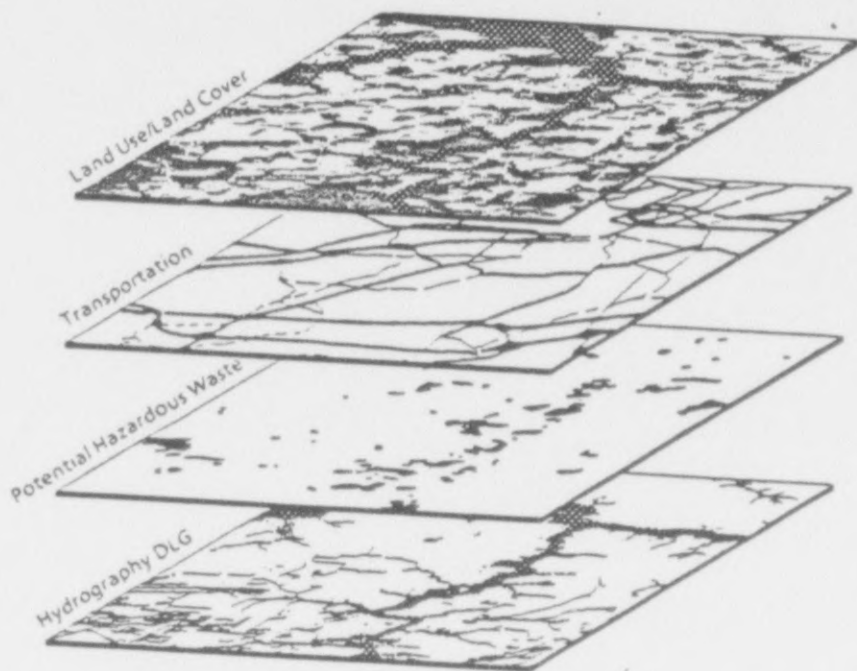


Figure 2.—Concept of separation of categories within a GIS.

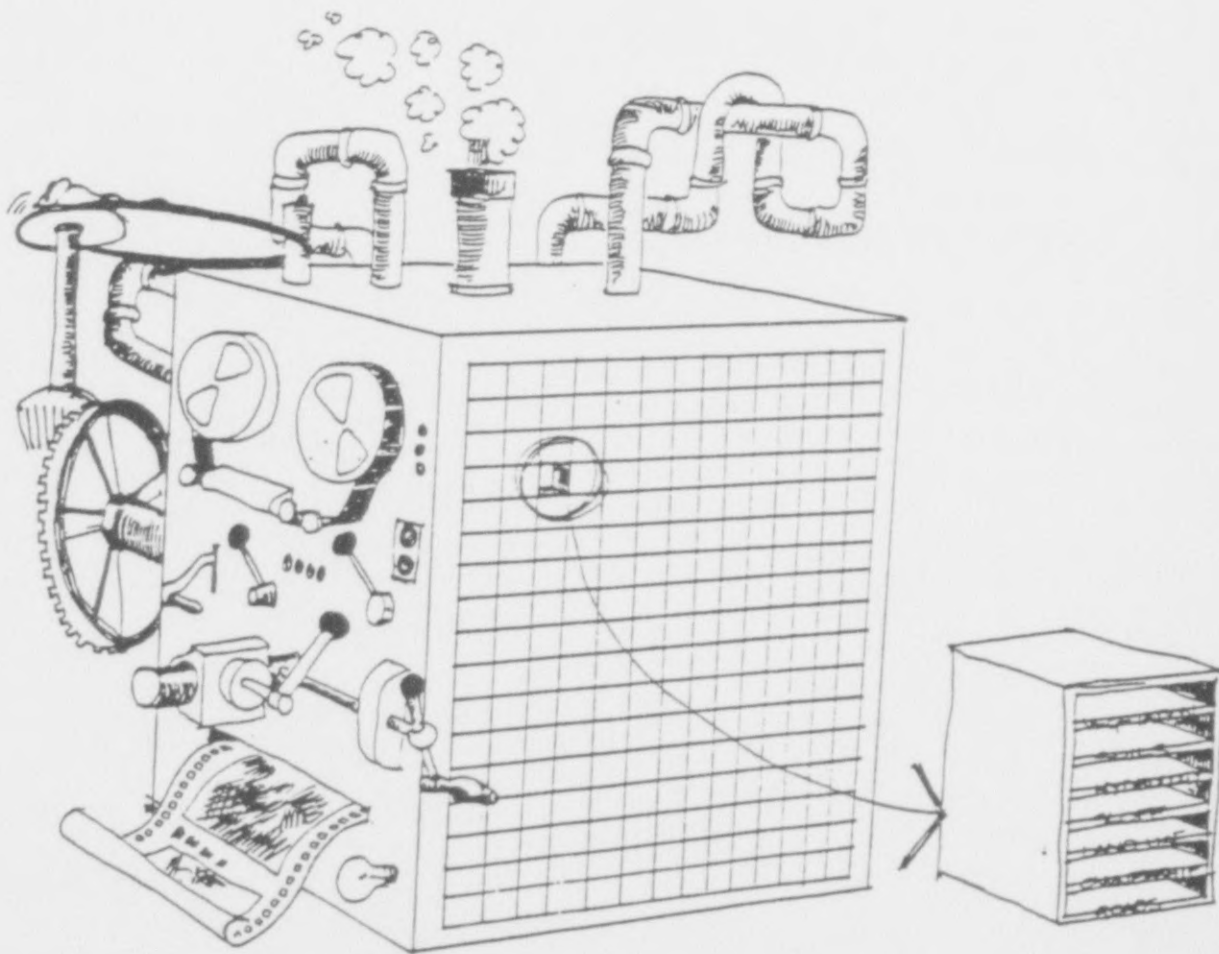


Figure 1 "A Geographic Information System"

*G. S. S. S.*

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**TABLE 4-1**  
**POTENTIAL GIS APPLICATIONS**

### Natural Resources

Timber Stand Management  
Land Cover Mapping  
Water Discharge Tracking  
Hazardous/Solid Waste Site Planning  
Wetland Mapping  
Sensitive Natural Areas Mapping  
Floodplain Mapping  
Groundwater Modeling Support  
Environmental Impact Analysis Support  
Air Discharge Tracking  
Water Well Drilling Inventory/Mapping  
Soil Erosion Prediction  
Continuing Forest Inventory  
Wellhead Protection Area Mapping  
Geologic Mapping

### Land Use Planning/Zoning

Zoning Map Production  
Land Use Map Production  
Demographic Analysis  
Historic/Archaeological Site Mapping  
Rezoning Evaluations  
Permit/Development Tracking  
Support for Redistricting  
Support for Comprehensive Planning  
Support for Public Lands Acquisition

### Public Works and Transportation

Special Road System Map Production  
Pavement Management  
Plat/Site Plan Review  
Right-of-Way Management  
Traffic Volume/Accident Analysis  
Route Analysis  
Traffic Facilities Inventory and Mapping  
Work Order Management  
Support for Transportation Modeling  
Route Log Maintenance

### Emergency Service

Support for Dispatch  
Incident Mapping  
Evacuation Planning  
Contaminant Tracking

### Parcel Mapping/Property Appraisal

Tax Neighborhood Analysis  
Ownership Searches/Query  
Identifying Parcels in Current Use  
Property Map Update/Production  
Support for Field Appraisal  
Special Property Map Production  
Scheduling and Routing Appraisals

### Water/Sewer Utilities

Mapping/Tracking Well and Septic System  
Locations  
Water/Sewer Map Update/Production  
Support for Water Supply Permit Review  
Pressure Analysis  
Leak Tracking  
Water Systems Isolation Identification  
Work Order Management

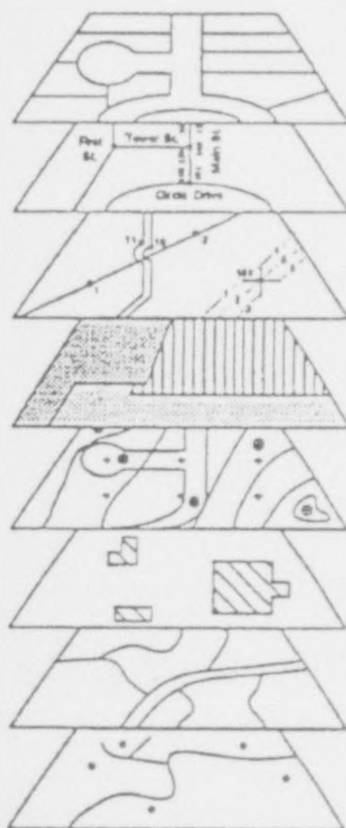
### Mining

Permit Preparation  
Mapping Sand/Gravel Pits and Rock Quarries  
Exploration Tracking  
Property Rights Tracking  
Mining Resource Mapping

**02615**

# South Carolina Infrastructure Planning Project SCIP

## GIS LAYERS



FIRST YEAR	SECOND YEAR
<b>A. TRANSPORTATION</b> <ol style="list-style-type: none"> <li>1. Highway Location (DLG)</li> <li>2. Railroad Location (DLG)</li> <li>3. Rail Terminals and Cargo Loading Sites (DLG)</li> <li>4. Airport Location (DLG)</li> <li>5. Port Location (DLG)</li> </ol> <b>B. WATER SUPPLY SYSTEMS</b> <ol style="list-style-type: none"> <li>1. System Extent and Location</li> <li>2. Systems Capacities</li> <li>3. System Output (Use)</li> <li>4. Hydrology (DLG)</li> </ol> <b>C. WASTEWATER SYSTEMS</b> <ol style="list-style-type: none"> <li>1. System Extent and Location</li> <li>2. Systems Capacities</li> <li>3. System Output (Use)</li> </ol> <b>D. HYDROGRAPHIC FEATURES</b> <ol style="list-style-type: none"> <li>1. All hydrological features including streams, lakes, reservoirs, and wetland areas (DLG)</li> </ol> <b>E. DEMOGRAPHICS AND ECONOMICS</b> <ol style="list-style-type: none"> <li>1. County boundaries</li> <li>2. Census County Division Boundaries</li> <li>3. Census tracts for the major metropolitan areas</li> <li>4. Zip Code boundaries</li> </ol> <b>F. BUSINESS AND INDUSTRY</b> <ol style="list-style-type: none"> <li>1. Industrial Directory</li> </ol> <b>G. MISCELLANEOUS</b> <ol style="list-style-type: none"> <li>1. Major electrical power transmission lines</li> <li>2. Geographical Names Information System File</li> <li>14,000 coordinate points for all populated places, hydrological features, schools, churches, cemeteries, etc.</li> </ol>	<b>A. LAND COVER (Satellite Imagery)</b> <ol style="list-style-type: none"> <li>1. Agriculture</li> <li>2. Water</li> <li>3. Forestry</li> <li>4. Urban</li> <li>5. Wetlands, etc.</li> </ol> <b>B. STREET NAMES / ADDRESS RANGES</b> <b>C. 1990 CENSUS DIVISIONS</b> <ol style="list-style-type: none"> <li>1. Counties</li> <li>2. CCD's</li> <li>3. Tracts</li> <li>4. Blocks</li> </ol> <b>D. HIGHWAY TRAFFIC COUNTS</b> <b>E. NEW ROADS</b> <b>F. BUSINESS FIRMS (Dunn &amp; Bradstreet)</b> <b>G. NAMED HYDROGRAPHIC FEATURES</b>

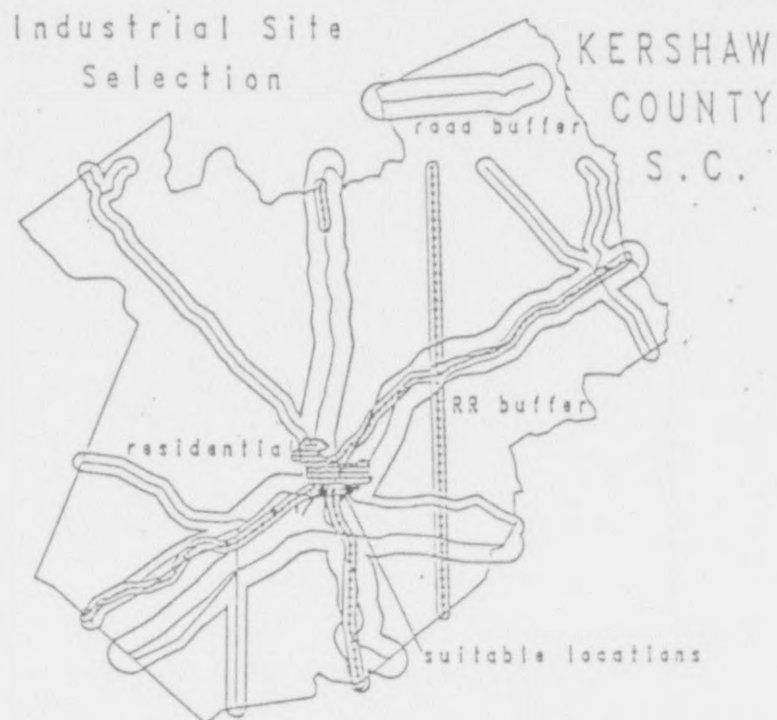


Figure 2. Industrial Site Selection Model for Kershaw County Derived from the DLG Base

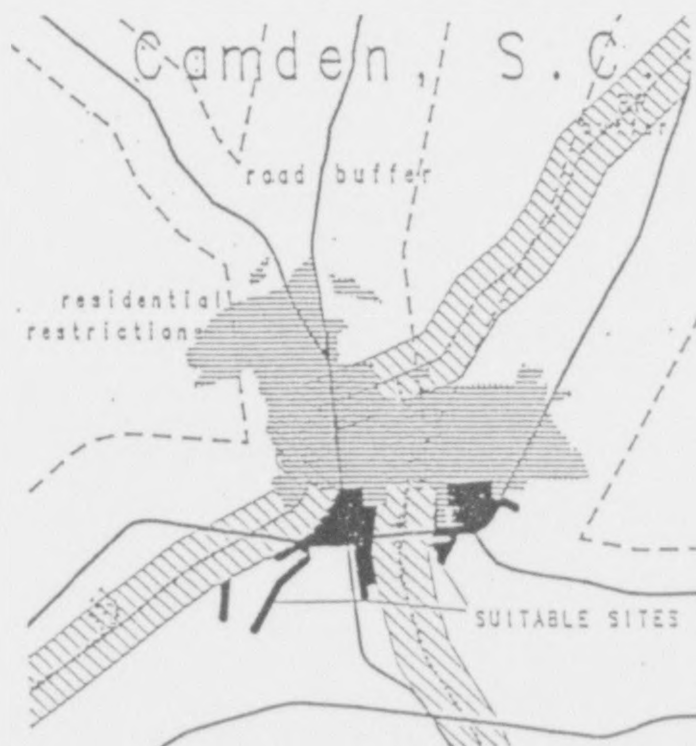


Figure 3. Enlargement of Industrial Site Selection Model



## Information Systems.

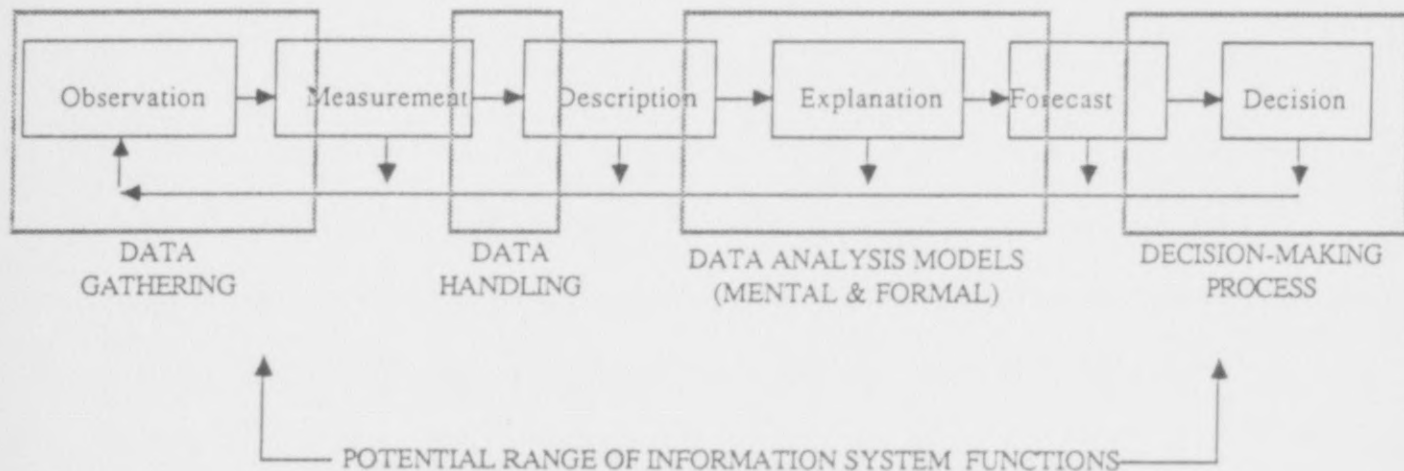
Objective: To process a set of data into useful information that will help in decision making.

System: "a group of entities and activities meaningfully connected and satisfactorily bounded, which interact for a common purpose or purposes" (Thomas and Shofer, 1970).

Information system: a set of steps or processes which is executed by a device to produce information (Kennedy and Meyers, 1977).

In other words, "a chain of steps that leads from observation and collection of data through analysis to use in some decision-making process" (Calkins and Tomlinson, 1976).

## Geographic Information System Functions.



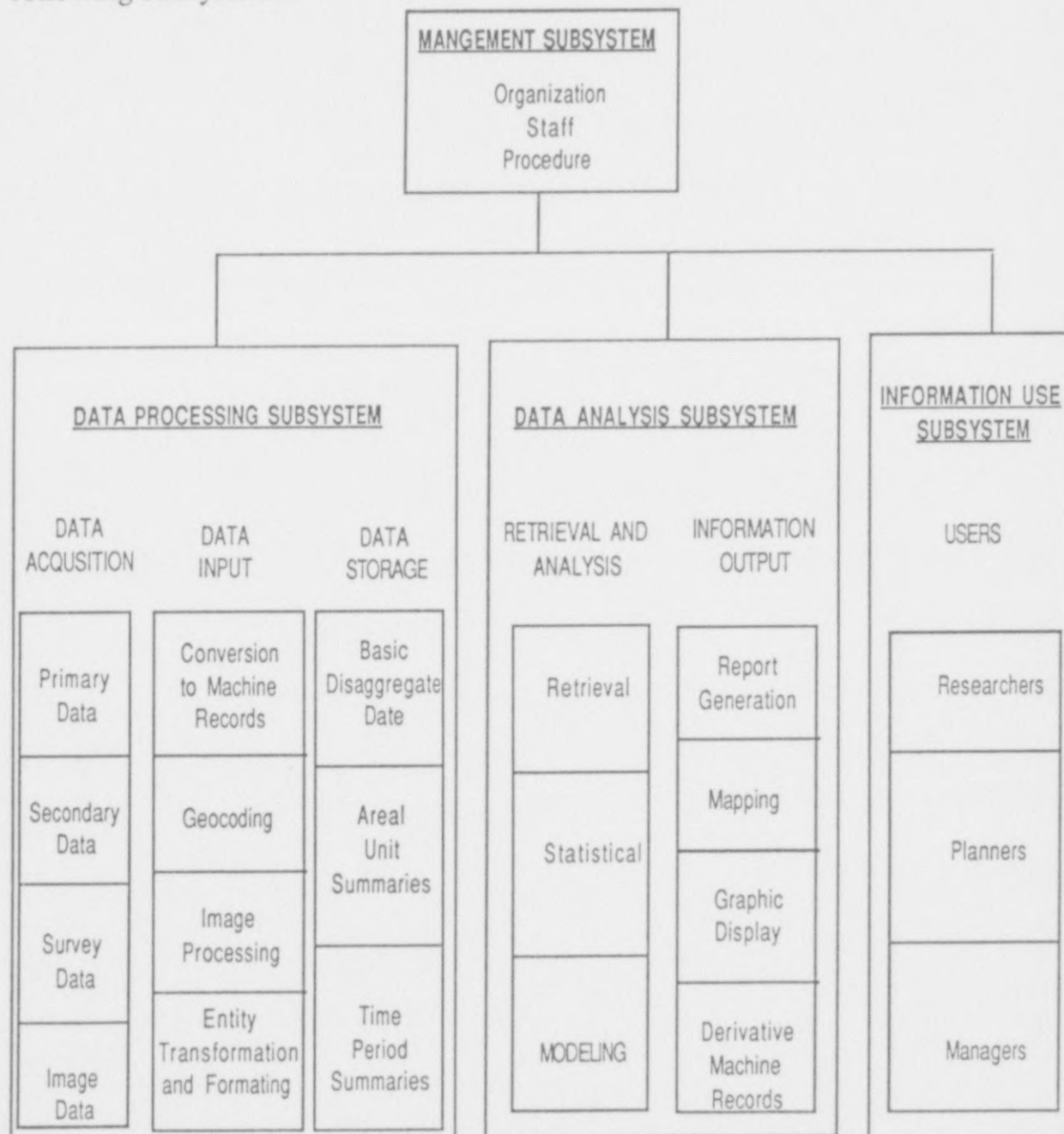
Source: Calkins and Tomlinson, 1976.

## Definition of a Geographical Information System.

Therefore, information systems become a function of the data they process. A geographical information system (GIS) is simply an information system that handles geographically or spatially referenced data.

## Components of a GIS.

In order to handle the functions it is designed for, a GIS must have the following subsystems:

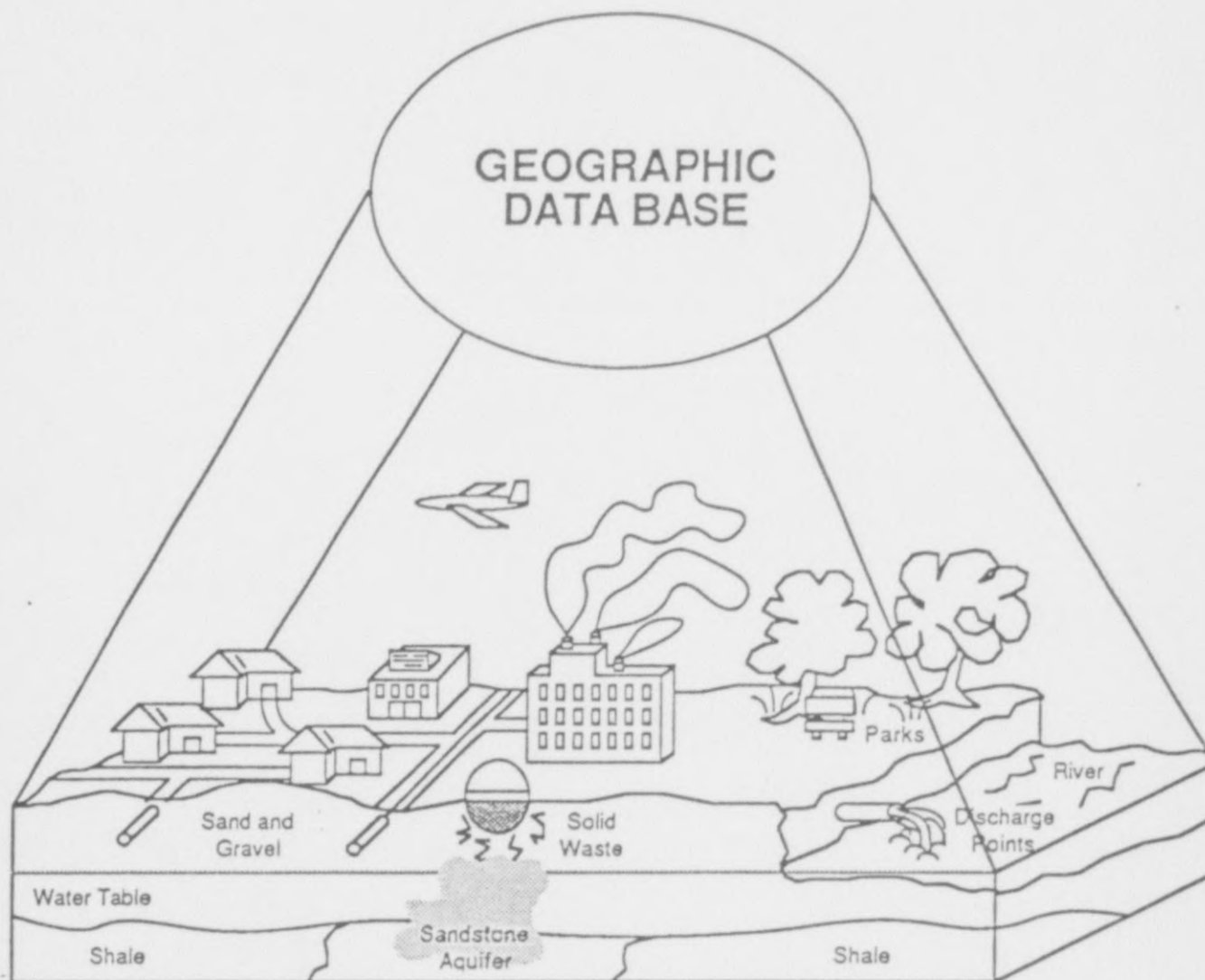


Source: Dueker and Horton, Modified

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# GEOGRAPHIC DATA

INCLUDES SPATIAL DATA AND  
DESCRIPTIVE DATA.






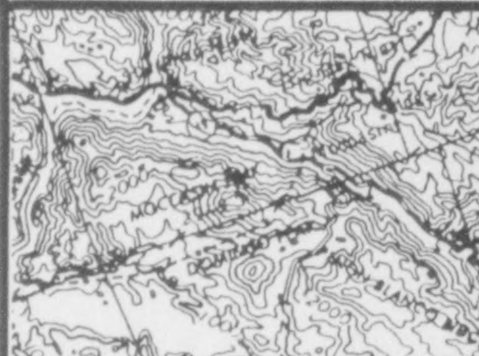

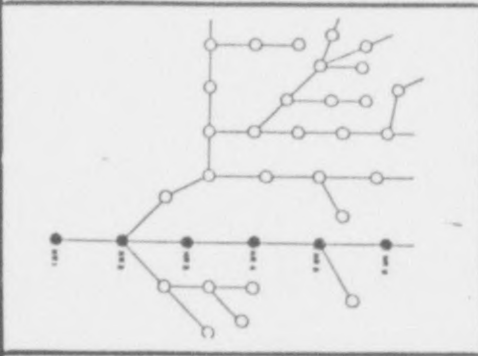

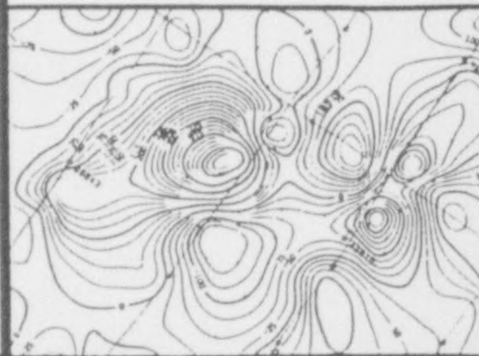
**Spatial Data** deals with location, shape and relationships among features.

**Descriptive Data** deals with the characteristics of the features.

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# EXISTING MAP DATA

POLYGON MAPS	LINE MAPS	POINT MAPS	SURFACE MAPS
			
MAPS OF HOMOGENEOUS GEOGRAPHIC CLASSES (I. E. SOILS, GEOLOGY)	LINEAR FEATURE MAPS (I.E. FAULTS AND ROADS)	POINT FEATURES (I.E. ARCHAEOLOGICAL SITES )	NATURAL TOPOGRAPHY
			
MAPS OF STATISTICAL ENUMERATION AREAS (CENSUS TRACTS)	NETWORK MAPS (I.E. SEWER LINES, DRAINAGES)	SAMPLING POINTS (I.E. CLIMATE)	THEORETICAL SURFACES (I.E. GEOPHYSICAL INFORMATION)

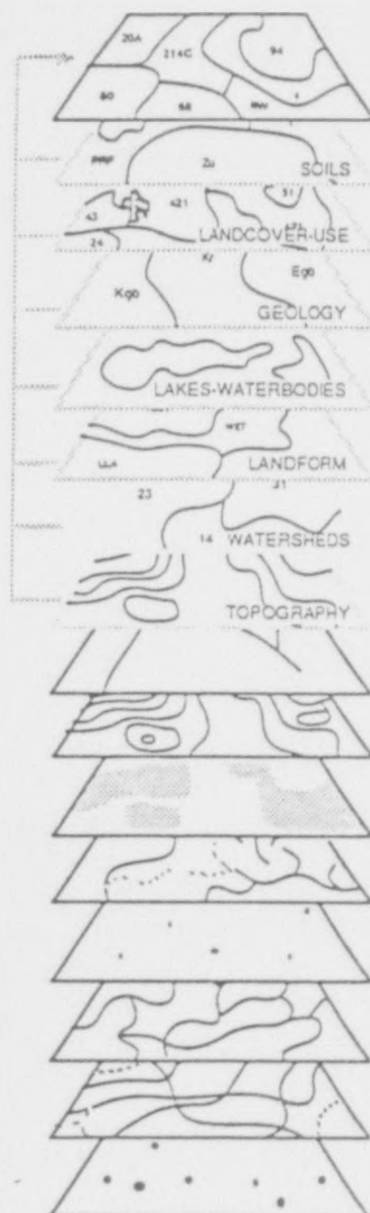
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## Geographic Base File Levels of Resolution

Geography	Components	Capabilities
Level I Geography Segment GBF	Segment Network Block Face Resolution Block Level Geocodes Address Ranges	Automated Geocoding Statistical Mapping Geographic Analysis and Modeling
Level II Geography Parcel/Network GBF	Parcel/Right-of-Way Definition Detailed Street and Utility Network Interface Parcel and Network Geocodes Legal Address and Parcel/ Network Identifiers	Exact Geographic Referencing Area Calculation Network Analysis Low Resolution Base Mapping
Level III Geography Engineering GBF	Precise X-Y-Z Coordinate Identification (Geodetic Survey Control)	High Resolution Base Mapping Cross-Section Analysis Detailed Utility Location

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Example layers in a geographic database for natural resource applications



LAYER NAME:	ATTRIBUTES:
TERRAIN UNITS (polygons) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Soil Types                             <ul style="list-style-type: none"> <li>• Component</li> <li>• Texture</li> <li>• Depth</li> <li>• Slope</li> <li>• Drainage</li> <li>• Erosion</li> <li>• pH</li> <li>• Nitrogen</li> <li>• Phosphorus</li> <li>• Potassium</li> </ul> </li> <li>• Landcover/Use                             <ul style="list-style-type: none"> <li>• Dominant Species</li> <li>• Canopy Closure</li> <li>• Stem Density</li> <li>• Mid-Story</li> <li>• DBH</li> </ul> </li> <li>• Geology</li> <li>• Lakes and Waterbodies</li> <li>• Landform</li> <li>• Watershed Basin</li> <li>• Topography Type</li> </ul>
FAULT (lines) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Type</li> <li>• Name</li> <li>• Hazard</li> </ul>
ELEVATION (lines and points) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Elevation</li> </ul>
SLOPE-ASPECT (polygons) Input Scale: 1:50,000 to 1:100,000 Derived from ELEVATIONS	<ul style="list-style-type: none"> <li>• Slope</li> <li>• Aspect</li> <li>• Surface-area</li> </ul>
STREAMS (lines) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Name</li> <li>• Type</li> <li>• Width</li> <li>• Periodicity</li> <li>• Order</li> </ul>
WELLS-GAUGING STATIONS (points) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Well Number</li> <li>• Gauging Station Number</li> <li>• Springs</li> <li>• Basin Number</li> </ul>
OWNERSHIP/ADMINISTRATIVE (polygons) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Owner(s)</li> <li>• Township/Range</li> <li>• Section</li> <li>• County</li> <li>• Local Districts</li> <li>• State Districts</li> <li>• National Districts</li> <li>• Mineral Leases</li> </ul>
TRANSPORTATION LINES (lines) (Roads, railroads, etc.) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Name</li> <li>• Type</li> <li>• Width</li> </ul>
SETTLEMENT/POINTS OF INTEREST (points) Input Scale: 1:50,000 to 1:100,000	<ul style="list-style-type: none"> <li>• Type</li> <li>• Description (house, historic, archaeological)</li> </ul>

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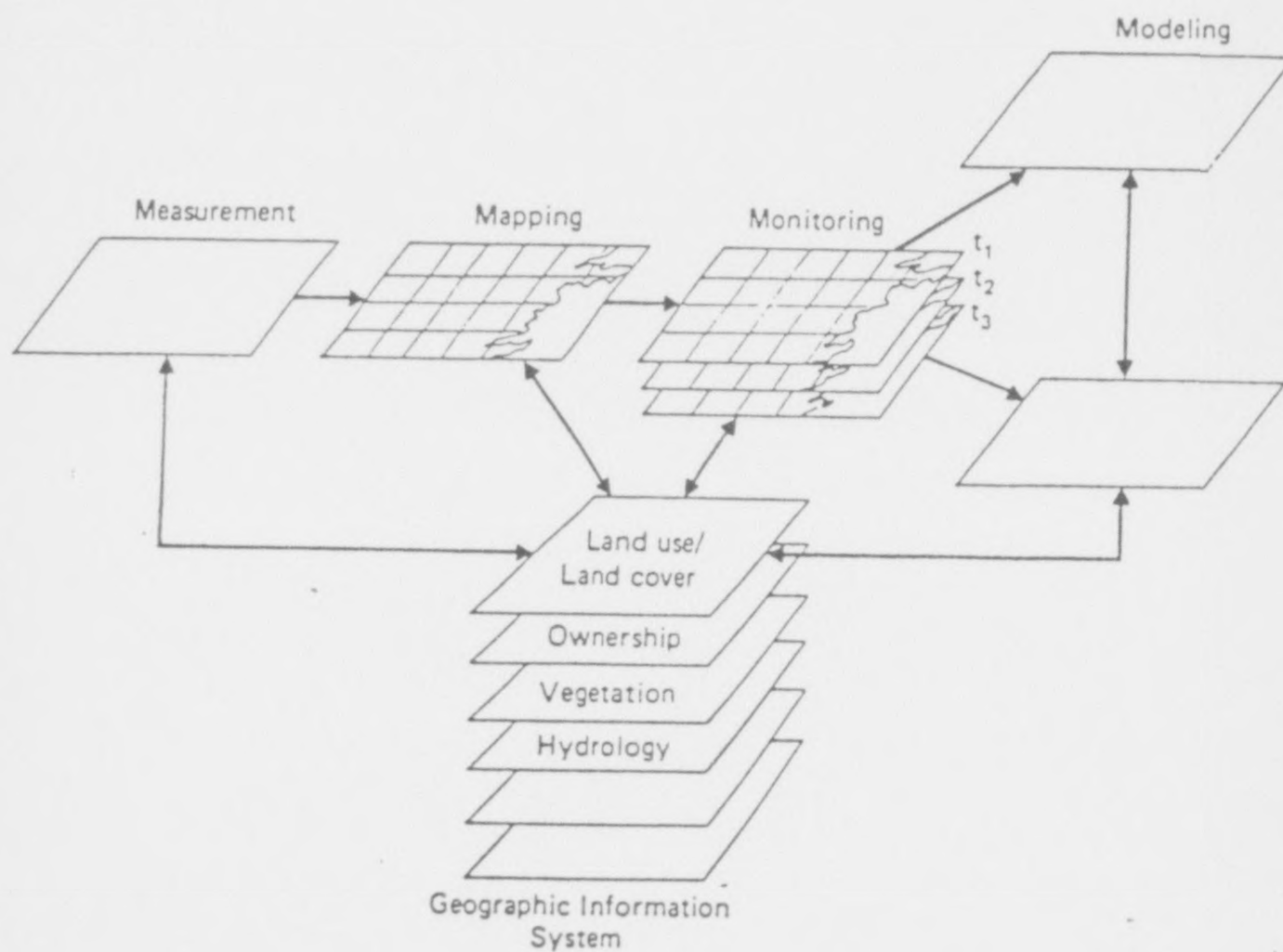


FIGURE 3. Measurement, mapping, monitoring, and modeling of environmental features and processes can be enhanced through the use of a geographic information system (after Star and Estes, 1989).

WISA

Workshops

## Information System Objectives

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Improve the Quality of Information

Provide Timely and Meaningful Information

Link Management and Operations

Improve Communications Between Departments/  
Agencies

Enhance Planning Capabilities

Improve Government Productivity and  
Citizen Service

**EXHIBIT**

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

HDR, 1985

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and an appropriate measure for that value is essential. A recent study of digital map databases characterized the benefits as follows:

Benefits:

- \* The tangible benefits are:
  - saving of time in map production and updating
  - saving of time in maintenance of facilities
  - better maintenance (saving of costs)
  - better planning/engineering (saving of costs)
  - saving of time in administration
  - more effective administration (saving of costs)
  - higher standards and accuracy of information
  - more updated information
  - quicker access to information
- \* The intangible benefits are:
  - more information
  - better analysis with less labor time
  - ability to do analysis not possible before
  - better decisions
  - better planning
  - better understanding and analysis of highly complicated systems

(Joint Nordic Project 1987, p. 20)



# GIS SOFTWARE TOOLS

## Data Entry

- Digitizing
- Scanning
- Automated Data Capture
- Interface to Existing Intersect

## Analysis

- Map Overlay / Intersect
- Nearness Analysis
- Diffusion
- Network Analysis
- Enclosure
- Measurement
- Attribute Analysis
- Interpolation

## Manipulation

- Map Merge
- Projection
- Clip / Window
- Update
- Generalize
- Aggregate

## Query

- Spatial
- Attribute

## Display / Report

- Tabular List
- Map Display
- Chart Display

## SECTION 2 SURVEY OF RELATED GIS DEVELOPMENT ACTIVITIES

### OVERVIEW OF STATE-LEVEL GIS DEVELOPMENT

As part of this investigation, PlanGraphics interviewed GIS installations in other states about their development and application activities. The purpose is to give an overview of GIS use in similar application environments to help in system planning. The results of the interviews are discussed in this section. In addition, state responses to a mailed survey are presented in Appendix A.

Most of the state-level GIS's surveyed by PlanGraphics came about because of a state or federal program mandate that required collection and analysis of large amounts of data to meet a specific need. The program needs range from a drought response to statewide reapportionment. Many state GIS's focus on natural resources and environmental management, from public land management to waste disposal siting. In some states, the original mandate that created the GIS is gone, but the GIS has evolved to serve other state needs. In other states, the GIS is still in search of a new mission.

PlanGraphics found few state-level systems which can be accessed directly by regional- and local-level users. The Illinois GIS is accessed by multiple state agencies at remote sites. The Washington Department of Natural Resources is linked to its seven regional offices. Most state systems are used principally by state agencies. Systems surveyed are used by local governments on an episodic, as-needed basis, with the GIS staff performing the application for them.

None of the state GIS's surveyed comprehensively cover all state agencies. Typically, state GIS's were created to serve one agency. In some states, more than one agency has a GIS, often developed independently with different hardware and software. Links between such systems can be difficult administratively, in spite of availability of technological solutions for data translation between systems.

Surveys conducted in 1987 and 1988 suggest that many of the older, established natural resource systems are doing well and other systems are expanding. Reasons for this trend include the maturing of GIS technology with proven applications, significant drops in the cost of computer hardware, improvements in techniques to integrate different data sources, and continuing successful education of users as to the value and uses of GIS.

Summary descriptions of state-level GIS's contacted directly in telephone interviews by PlanGraphics are presented below. The systems interviewed are in Connecticut, Illinois, New Hampshire, New Jersey, North Carolina, Texas, Utah, and Washington. Each summary gives system name, acronym, contact, system status, hardware and software used, number of users, application areas, major state/local programs addressed, major problems encountered, future directions, and any additional information. Appendix A contains information for 20 GIS installations in the United States and Canada, collected through a mailed survey form, and a Summary of Individual GIS responses.

#### Major Problems Encountered, Future Directions

The GIS staff interviewed noted several common problems connected with funding, programs, organization, technology, and databases, as well as problems unique to their

situation. The most common problem voiced by those interviewed is lack of adequate funding. Many have no major stable continuing funding source. GIS managers reported creative, but short-term, solutions to funding. They enter multi-year cooperative agreements, arrange data and services exchanges, use their agency division's operating funds, and constantly seek new projects with state and federal agencies and other potential users.

The major programmatic problems other state systems have faced run the gamut from unfocused system goals, to lack of reliable information that can be used, to loss of the system's statutory mandate. Organizational problems include lack of staff and inability to keep staff. Technical problems identified were difficult or CPU-intensive interfaces between different types of hardware/software, and the need to make major hardware purchases about every 10 years due to the rapid obsolescence of hardware. Initial database problems concern data availability, accuracy, and level of detail. Subsequent database problems concern data updates.

The system managers interviewed may take diverse future directions, but most plan to expand their databases and their users. The expansions may occur through agreements to perform specific project work or through acquisition of workstations by other agencies. Interest in system and data coordination seems particularly strong in states with many ARC/INFO users. Some system managers are looking to find additional or other funding sources, through developing a user charge system, or landing major new projects with state agencies. Other managers plan to make their systems more user friendly and spend time educating local governments in GIS uses.

#### What Are The Lessons Learned for Vermont?

The following "lessons learned" are taken from telephone interviews with eight state GIS managers. They are presented as snapshots of comments made by the interviewees.

- Long-term financial and institutional support are critical to a GIS' success. "GIS take a lot of money, energy, and time." A GIS must be stable with changes of administration. It cannot be overly susceptible to political whims, although it needs some adaptability to survive.
- Secure line item funding for the system. A budget independent of any cost recovery mechanism is essential for successful system implementation and maintenance. Line item funding provides resources for maintaining existing databases and developing new capabilities. User fees cannot cover these items.
- Obtain the support of senior management. Without this support, necessary human and financial resource commitments will not be made. Such support can be fostered by providing products or capabilities which help them. The earlier these products or capabilities are provided, the better.
- Adequately plan for the GIS - What information will be needed? How often will it be needed? Develop the database to meet the specific agenda at hand, but with an eye to an overall comprehensive database structure.
- Get a formal, explicit mandate for a government-sponsored GIS to provide an overall direction on which to base specific long-term planning. This can be legislation, an executive order, or a policy.



- Find an organizational "home" for the GIS that already is a data source for the state, is familiar with data accuracy standards, and is "neutral".
- Consider providing "free" services to the legislature, governor's office, and local governments as a way to familiarize potential users with the system and find allies.
- Don't try to develop a full-blown system at once. Such an approach, if it fails, can discourage top decision makers from ever reconsidering a GIS. The systems that have developed in an evolutionary manner seem to be more successful, as measured in funding, database comprehensiveness, number of users, and planned future expansion.
- If the budget constrains development of an initial detailed statewide database, enter generalized statewide data layers such as that available on small scale roads, land use and soils maps. Many statewide GIS applications may work well with generalized data. The availability of general applications early on may help develop policy makers' interest in the system. The broad brush data can be replaced with more detailed data as projects make this possible.
- Where possible, develop data that are likely to meet the needs of the user with the highest data accuracy requirements. This will give the database more flexibility for subsequent applications.
- Provide resources for a preliminary, overall database design. Otherwise, data consistency, uniformity, and completeness will be lacking.
- Develop a sound database and the expertise to convert the database into information that fits users' needs.
- Pick system software based on the user needs identified, then choose hardware which fits the software.
- Use state funds to develop and maintain a corporate database and provide a base level of support for administrative staff and system maintenance. Expect state funding needs to be high in the early years. Fees can be assessed for specific projects and data transactions.
- Have the ability to integrate data across individual program lines. This is critical to a successful GIS, both in terms of its usefulness and its ability to develop a comprehensive database that can serve more than one application.
- Share GIS resources and stress cooperation between agencies to maximize the system benefits and minimize the costs. A GIS dedicated to a single application is rarely cost-effective.
- Consider non-GIS databases which may be of future value in developing a GIS. Many GIS's are developed independently of traditional data processing, and then find they need to build a bridge back to it as users seek to interface GIS and non-GIS data.
- Expect to conduct continual education and training of potential users as to GIS technology and its uses.

- Establish a way to obtain feedback from your users on system policies and practices. This is important to sustain broad system support. User and policy committees are common ways to solicit and evaluate user input.
- Be aware that a GIS' staff, not its technology, will make it work. Good people can overcome programmatic or technical limitations. Hire full-time, qualified, technically proficient staff.

# Trends

- Data Management Concepts
- Hardware Technology
- Software Technology
- Institutional Awareness
- Communication Technology



# Technological Changes in Hardware

Independent → Integrated Networks  
Processor

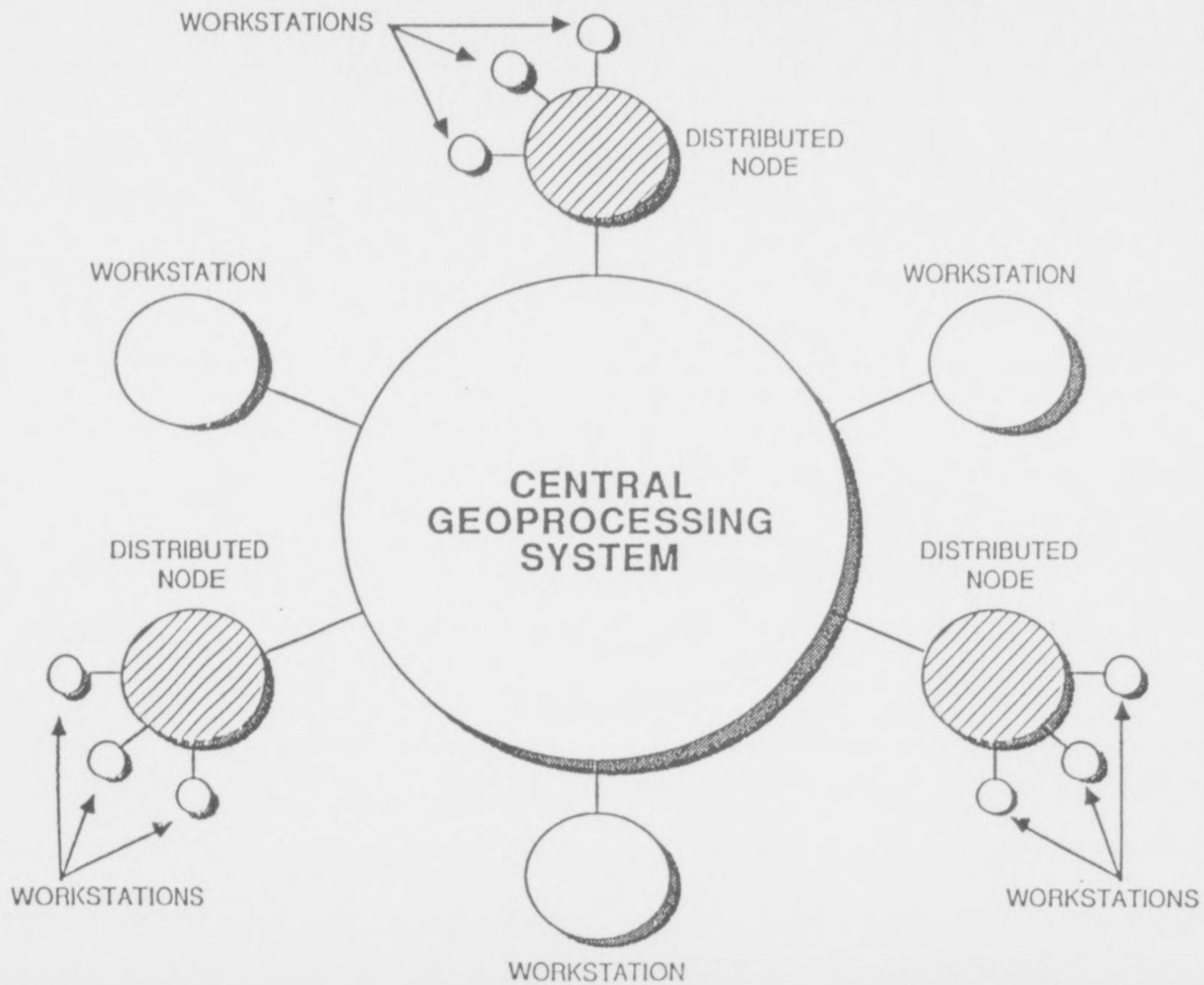
- Less Expensive
- Faster
- More Functional

## Technological Changes in Hardware



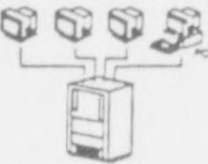
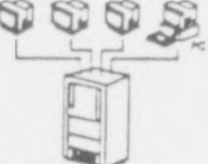
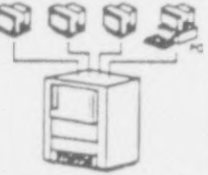
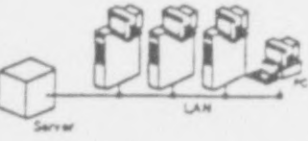
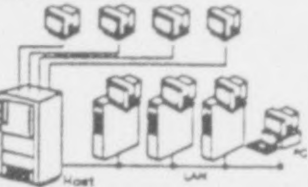
- GIS Tools on Micros
- Micros Upgraded to 32 bit Super Workstations
- Local Area Network
- Faster Mini's and Mainframe
- More Storage

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# BUILDING BLOCK CONCEPT





	Typical Configuration	Typical Components	Approximate Hardware Cost **
SINGLE-USER	PC 	IBM PS/2-80 20MHZ, 2MB Memory 640 x 480, Color, 16" MS-DOS/VOL, ~120 MB Disk Math Coprocessor 1.2 MB Floppy Disk	\$7,000
	Workstations 	SUN 3/60 FC-4-P14 3MIPS, 4 MB Memory 1152 x 900 Color, 16" UNIX/SUNVIEW 327 MB Disk 60 MB Tape Ethernet	\$21,000
MULTI-USER	Multi-User UNIX 	Tektronix 4201 Option 1B, 3A, 17 4 MIPS, 8MB Memory, 4 RS-232 Ports, 300 MB Disk, UNIX/X Windows, Ethernet 4944, Option 19 300 MB Disk, 60 MB Cartridge Four 4207's Graphic Terminals with 1-2 MB of Memory and Mouse	\$56,000
	Multi-User Proprietary Operating Systems 	Prime 4150-22C 24MB of Memory 770MB Disk PT250 Terminal 5733-IC33 Subsystem w/16 Asynch. Lines 4587HG Quad Density Tape Dr. Four Tektronix 4207's Four Tektronix 4224's	\$100,000 + \$500,000 +
	Mainframe 	IBM 9375-040 Processor 4008 MB Main Memory Addition 6003 Sys/370 BLK Multiplex Channel 6010 DASD/Tape Controller 6020 Workstation Subsystem 6030 Comm. Processor 6032 Asynch 4-LN Adapter  9332-400 Rack 9309-002 Rack Enclosure, 1.6 Meter Mounted DASD - 800 MB	\$300,000 + \$1,000,000 +
NETWORKS	Workstation/LAN 	SUN 3/1605-8 Server 2 Mips, 8 MB, Ethernet, UNIX 517A OPTION 654 MB, 60 MB Tape Four 3/60 3 MIPS, 4 MB Memory Diskless FC-4	\$15,000 - \$25,000/Seat
	Mini/Workstation/LAN 	Example - Adding SUN Network to Prime Mini Computer Additional Prime Components Needed: Ethernet Board, Transceiver, WSI 300 Software TCP/IP  SUN Hardware Needed: Multiple Workstation, 3/60 FC-4-P14, 16" Monitor, 3MIPS, 4 MB, 327 MB Disk, 60 MB Disk, Unix/TCP/IP	Variable

\*\* As of January 1988

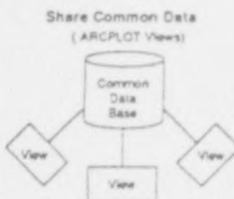
# GIS Trends

## The Organizational Impact of GIS Technology by Jack Dangermond

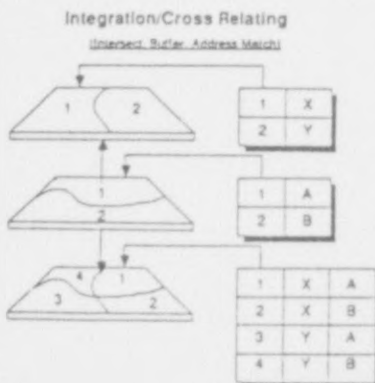
I have noticed that many people who examine GIS technology are initially attracted to it by the many applications and benefits it offers within their own profession, discipline, or area of expertise. For example, a planner may see how to do a better job of planning, a cartographer may see how to better produce or update a map series, and a natural resource scientist may see how to more effectively analyze or model a natural environment.

For some time, many of us have suspected that GIS capabilities could also have real, meaningful impact on the organizations through which individuals and institutions carry out their work. Now we've actually begun to observe such impacts. Three GIS capabilities have major significance for organizations:

1. The ability to share a common data base of spatial information. This often leads to better interdepartmental cooperation and a vast reduction in redundancy and inconsistency.

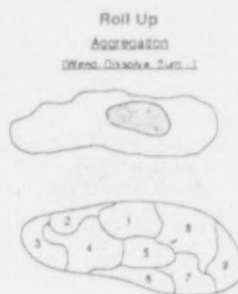


2. The ability to bring together otherwise unrelated data, using location as a method for building the relationships. This can lead to interdisciplinary discoveries and cooperation at many levels.



3. The ability to "roll up" (aggregate) micro data (the very specific data commonly associated with operational functions) into larger spatial units which

are more useful for the macro applications commonly associated with management planning. This can lead to far better understanding, cooperation, and management of the operational units within an organization.



### Sharing Data: GIS Cross-Cuts Departmental Specialization

Most institutions, including governments, are organized into functionally specialized departments. For example, within a city government, the police department focuses on police matters, the fire department on fire matters, the human services department on human services, the welfare department on welfare, and so forth. These departments concentrate on their own specialized work, and often develop their own separate data or information to support their particular activities.

One of the valuable roles of a GIS is to integrate information across an organization so that it can be shared, interrelated, and used in common among different departments or groups.

One of the goals in implementing a new GIS ought to be the development of new organizational procedures which make use of this shared, integrated information.

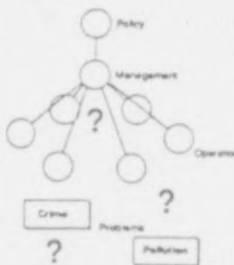
Information science has shown that good information management can have positive effects on organizational behavior.

There are plenty of examples of that effect. For example, when personnel records kept in several departments are first integrated, there is a profound effect on the

organization. When order entry records are integrated with customer information, billing, and shipping records, the whole organization typically goes through a transformation in which overall customer service and interdepartmental cooperation becomes much better because all departments operate from common knowledge about each customer's particular situation.

### Eliminating Redundancy and Inconsistency

There's an important additional benefit of sharing data. It can reduce redundancy and inconsistency between databases. For example, in the cases where map data regarding land records are maintained manually, there are often different departments which develop and maintain these maps redundantly. This redundancy typically evolves for a variety of reasons, not least of which is the difficulty of overcoming bureaucratic and professional differences of opinion about standards and maintenance procedures for the data.



When the data are redundantly developed, they are also usually inconsistent, so that different departments have different data; sometimes these data are in conflict, which creates all sorts of friction and inconsistencies in the way that operations are carried out.

Data redundancy has an even greater impact when the data are subject to rapid changes, such as rapid change in land parcel data due to new subdivisions or booming sales of real estate. These rapid changes lead to the further possibilities for inconsistency occurring, even though there may be several large, redundant staffs maintaining the data, and even though large resources are being expended on information management.

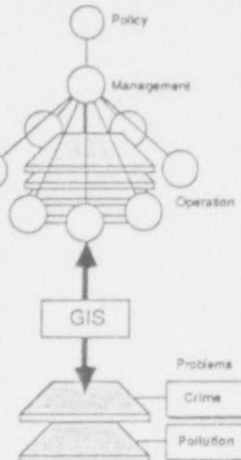
GIS technology helps to alleviate such problems through the sharing of data resources in a common database, thus eliminating the need for duplicate data.

### Bringing Data Together: Interrelating Information to Solve Problems

The very nature of GIS technology encourages the integrated activity of multiple departments so that they can approach problems in a more comprehensive and systematic way.

A GIS is, first of all, an automated information system. A GIS brings information together, it unifies and integrates that information. It makes available information to which no one had access before, and places old information in a new context. It often brings together information which either was not or could not be brought together previously.

Even ESRI's limited experience in applying and implementing GIS technology in planning and management projects in the past



dozen years confirms that when information is integrated, there is a

Continued on page 26

### Information Integration



Our Disciplines Sometimes See Reality Like This

Sometimes Like This

But Almost Never Like This

About closely related subject we sometimes have redundant data



Where they are different we have disparate data and inconsistent data



A shared database requires that organizations and disciplines work together to integrate their data where possible, while recognizing fundamental differences in information needs. The integrated approach also requires an information technology that is flexible and capable of ad hoc queries which interrelate spatial information.

# Conceptual Design Process

## Step 1 GIS Seminar



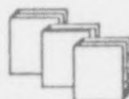
- Products:
- seminar booklet
  - introduction to GIS

## Step 2 User Needs Assessment

What do the users do and need?



Interviews



documentation

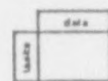


existing data

- Products:
- task descriptions
  - system descriptions
  - data descriptions
  - observations
  - GIS needs and potential
  - legal and administrative issues

## Step 3 Requirements Analysis

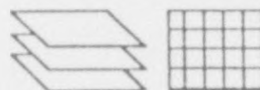
What are the system requirements?



task/data interrelationships



functional groupings



data characteristics

- Products:
- standard functions
  - data requirements
  - software tool requirements
  - hardware requirements
  - organizational requirements

## Step 4 Conceptual Design

What is the preferred model for the system?

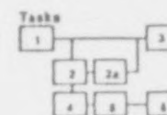


User Applications

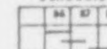
- Products:
- application module design
  - data base model
  - hardware specification
  - software specification
  - administrative framework

## Step 5 Implementation Plan

How do we build the system?



Schedule



- Cost
- people
  - equipment
  - data automation

- Products:
- tasks to build system
  - responsibility for tasks
  - implementation schedule
  - costs
  - operational responsibilities



# Conceptual Design Process

## Step 1 GIS Seminar



Products:

- seminar booklet
- introduction to GIS

## Step 2 User Needs Assessment

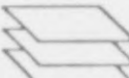
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Interviews



documentation



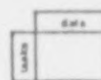
existing data

Products:

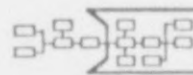
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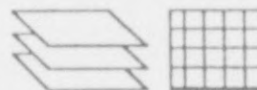
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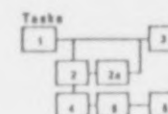
User Applications

Products:

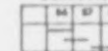
- application module design
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- hardware specification
- software specification
- administrative framework

## Step 5 Implementation Plan

How do we build the system?



Schedule



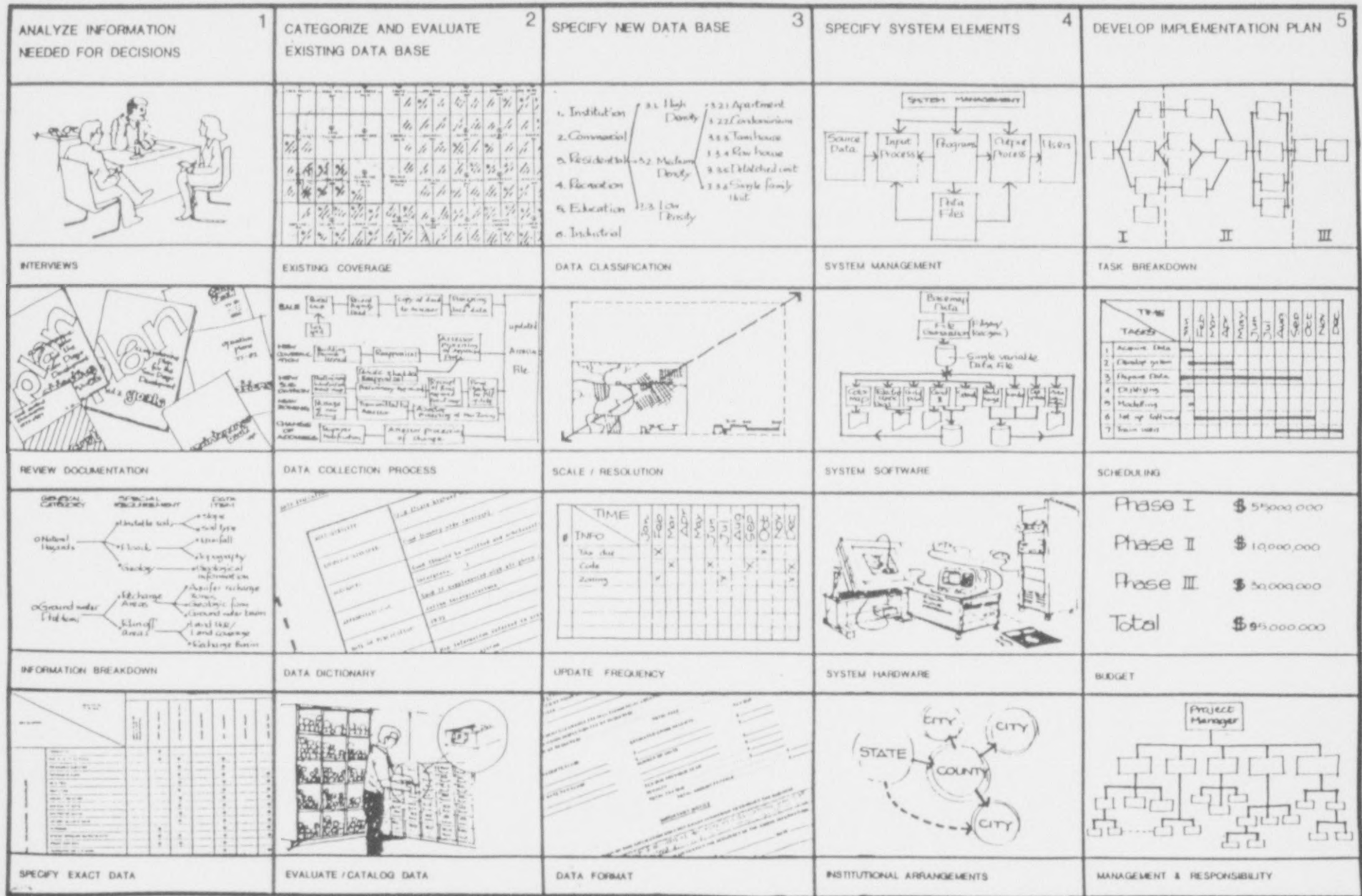
Cost \$

- people
- equipment
- data automation

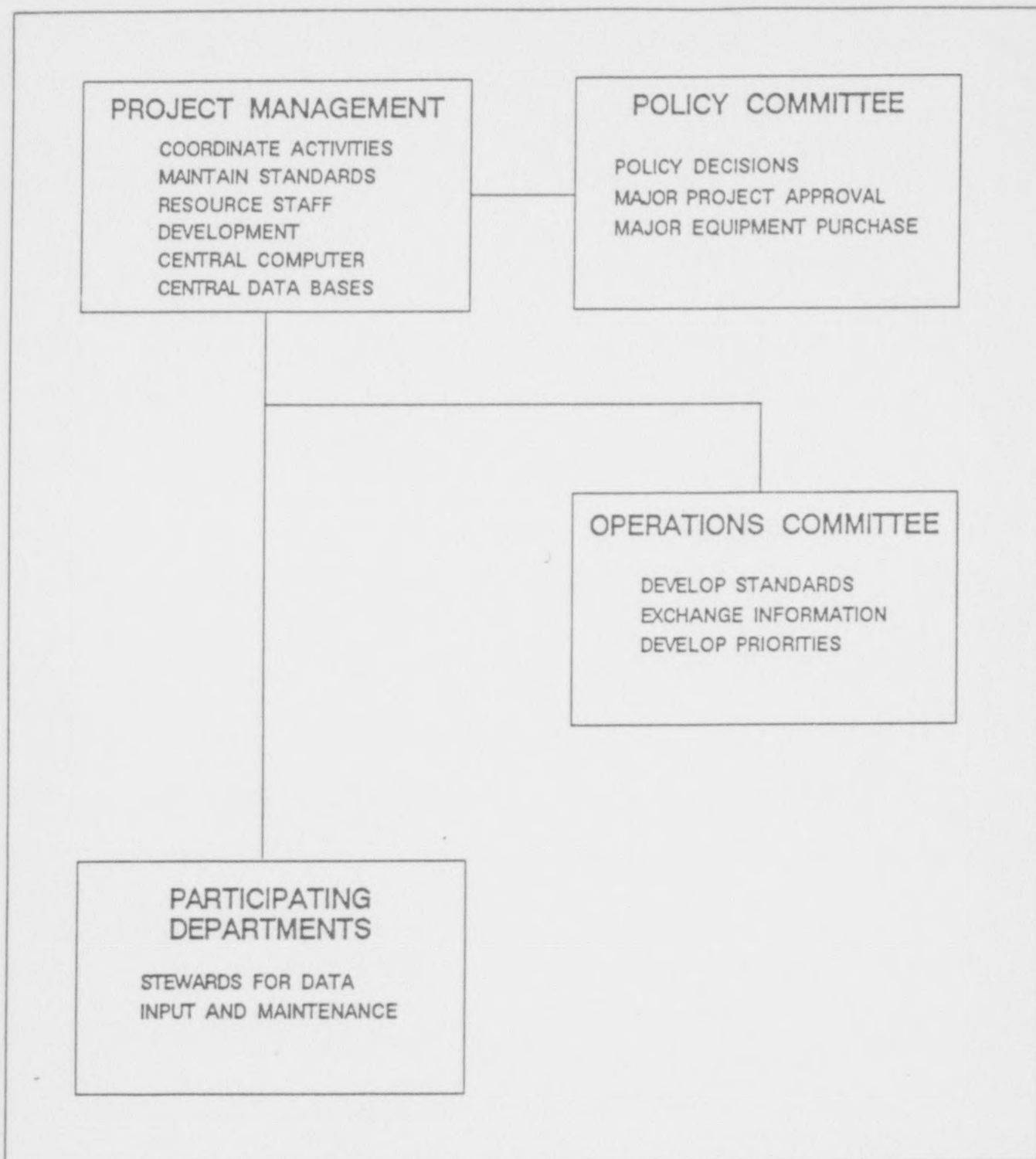
Products:

- tasks to build system
- responsibility for tasks
- implementation schedule
- costs
- operational responsibilities

Figure 2



DESIGN INFORMATION SYSTEM





## How To Insure A Successful System

### Executive Commitment

- Establish Policy

- Provides Adequate Resources

### User Involvement

- Avoids the Not-Invented-Here Syndrome

- Establishes Credibility

- Insures Eventual Use

### Technical Assistance

- Speeds Implementation

- Eliminates the Learning Curve

- Provides Experience

## How To Insure A Successful System Cont.

### Planning

- Establishes Operational Goals, Objectives and Policies
- Determines Existing Capabilities
- Defines Specific Needs
- Identifies a Design Methodology
- Selects an Implementation Strategy

### Documentation

- Speeds User Training
- Established Standards
- Eliminates "Personality" Dependence
- Enables Internal and External Transfer

### Institutionalization

- Insures System Continuity

## OVERVIEW OF PRESENTATION

### I. What is GIS

- A. Systematic approach to management of geographical information
- B. Data Layer Concept
- C. Examples of applications - 80% of decisions in local government are based on geography
- D. Combination of computer technology, maps, procedures and people
- E. Integrated Tools
  - 1. Data entry
  - 2. Data Analysis
  - 3. Data Manipulation
  - 4. Data Query
  - 5. Data Output

### II. What is Current Status in South Carolina? (NOT COMPLETE)

- A. State
  - 1. The State Development Board Infrastructure/Economic Development Project
  - 2. Budget and Control Board - Division of Research and Statistical Services - Precinct Mapping, Health Statistics, Demographics
  - 3. The Water Resources Commission/NOAA Edisto Basin Project
  - 4. The Land Resources Conservation Commission/ Satellite Based Land cover
  - 5. Wildlife and Marine Resources - Marine Resources Lab, Game Management, Fresh Water Fisheries
  - 6. DHEC - Vital Statistics project with USC
  - 7. Department of Highways and Public Safety
  - 8. Santee Cooper
  - 9. Coastal Council - National Wetlands Inventory
- B. Universities
  - 1. USC
    - a. Geography
    - b. Humanities and Social Science Lab
    - c. Public Health
    - d. Baruch Institute
  - 2. Clemson
    - a. Strom Thurmond Institute
    - b. Parks and Recreation Planning
    - c. Urban Planning
    - d. Agricultural Economics
    - e. Forestry
- C. Local and Regional government
  - 1. Appalachian COG
  - 2. Other nine COG,s (planning)
  - 3. Lexington County
  - 4. City of Greenville
  - 5. Hilton Head
  - 6. Aiken



- 7. Others
- D. Private
  - 1. Timber companies
  - 2. Utilities
  - 3. Consultants
- E. Federal
  - 1. NOAA
  - 2. Geological Survey - Water Resources Division
  - 3. Corps of Engineers
  - 4. Fish and Wildlife Service
  - 5. Savannah River Site - Westinghouse
- III. Driving Forces
  - A. Proven Technology at reduced cost
    - 1. 1985 one million instructions per second (MIP) = \$100,000
    - 2. 1989 one MIP = \$1,000
    - 3. Excellent color plotters
    - 4. Excellent graphics
    - 5. Excellent software - no longer experimental
  - B. Distributed computing coordinated through high speed networks
    - 1. USC, Dennis Bldg, AT&T, and Clemson to be Linked by Fiber Optic network
  - C. Successful Applications - Fortune Magazine Article
    - 1. 1988 Market = \$282M
    - 2. 1992 Market = \$590M
    - 3. Growth rate = 35% / year
  - D. Federal Digital Cartographic Data - Especially Census and USGS Major Effort to coordinate digital mapping within the Federal Government. Office of Management and Budget Issue
    - 1. Census Bureau TIGER files - \$200 M project
      - a. Nationwide digital street map
      - b. Street names and address ranges useful for 911 service, vehicle routing, market analysis etc.
    - 2. US Geological Survey Digital Line Graphs - Base Map for the National Digital Cartographic Data Base
- IV. What Needs to be Done - Coordinated Approach
  - A. Common Base Map
    - 1. Follow Federal Standard (1:24,000)
    - 2. Follow Federal Standards for classification i.e. Land Use and Wetlands
  - B. Eliminate redundant activities through a shared network
    - 1. Determine common layers to be created
      - a. Transportation
      - b. Sewer and Water Networks
      - c. Hydrology
      - d. Land cover
      - e. Census
      - f. Soils
      - g. Game Management Areas
      - h. State Owned Property
      - i. Other
    - 2. Assign agency responsibilities for layers

- a. Develop definitions
- 3. Establish quality assurance and control mechanisms for development of State Digital Geographic Data Base
- 4. Create a network that would allow each agency to extract files from a neutral central repository
- 5. Establish long term funding mechanisms that will allow agency specific projects to establish and maintain the data base
- C. Establish Coordinated Efforts with the Regional and Local Governments
  - 1. Share common data layers
  - 2. Provide quick access to site specific data bases needed for state planning, monitoring and regulatory activities

# EXHIBIT

SEP 6 1989

NO. 1

## BIOGRAPHICAL SKETCH

STATE BUDGET & CONTROL BOARD

James C. Hite

James C. Hite is Alumni Professor of Agricultural Economics at Clemson University and a Senior Fellow of the Strom Thurmond Institute of Government and Public Affairs. A native of Tennessee, Professor Hite received the B.S. in agricultural economics from Clemson in 1963, the M.A. in history from Emory University in 1964, and the Ph.D. in agricultural economics from Clemson in 1966. In 1969-70, he was a Post-Doctoral Fellow in regional science at Harvard University. In 1985, he was Gordon Fellow at Deakin University in Australia.

Professor Hite teaches undergraduate and graduate courses in natural resource economics and public finance and conducts research in state and local government finance and regional resource development. He is the author of four books and is the editor of THE REVIEW OF REGIONAL STUDIES.

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DIVISION OF ENERGY  
AGRICULTURE & NATURAL RES.

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# EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

ENVIRONMENTAL TRENDS AND ECONOMIC DEVELOPMENT PLANNING:

A BRIEFING FOR THE SOUTH CAROLINA BUDGET AND CONTROL BOARD

James C. Hite

## Introduction

My assignment is to discuss environmental trends and their implications for economic development planning in South Carolina. Given the need to be brief, I must necessarily focus upon the big picture. I will, therefore, deal with only four major topics:

- 1) Changing perceptions of the nature of environmental problems;
- 2) Strategic problems in dealing with uncertainty associated with climate change and ozone depletion;
- 3) Improvements in systematic and on-going monitoring of environmental changes in South Carolina;
- 4) Maximizing the economic development benefits of South Carolina environmental amenities.

Each of these topics is worthy of treatment in much greater detail than you will hear today. My discussion should be taken only as an introduction to, and (in some sense) an oversimplification of, some major environmental issues.

## Changing Perceptions

When the environmental movement came to the forefront in America in the 1960s, the primary concern was protection of environmental amenities. Problems of public health arising from pollution were recognized, of course, and many environmental scientists understood that continued abuse of the environment could threaten ecological systems necessary for maintenance of human life and civilization on this planet. But the environmental movement was often perceived as a group of "bunny huggers" who saw protection of environmental assets as important in maintaining and enhancing the quality of life. In short, environmental protection was seen as a nice luxury, but decidedly of lower order of significance than the basic economic problems of putting bread on people's tables and shoes on their kids. We economists have collected a lot of data supporting the notion that in the 60s and 70s, most people saw environmental protection as a tradeoff against more income in their pockets.

In the 1980s, that perception of environmental problems seems to be undergoing change. Perhaps largely because of information in the popular

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press about the so-called "greenhouse effect," ozone depletion, acid rain, and toxic wastes, threats to vital life support systems that once were perceived only by a few scientists are now being understood by a growing proportion of the public at large. Political observers are predicting that environmental issues will be at, or near, the top of both the domestic and international political agendas.

If it ever was, the problem of environmental protection is no longer just one of protecting fishing streams, preserving endangered species, and making sure that future generations have opportunities for wilderness experiences. More and more, it is being understood that our entire economic order depends upon protection of the environmental matrix in which humans live and perform economic activities. Unfortunately, protection of these environmental life support systems is largely beyond the capabilities of an individual state like South Carolina, and perhaps, beyond the capabilities of even a large and powerful nation like the United States. So global cooperation in environmental programs is likely to be a major trend requiring a whole new set of competencies on the part of diplomats. Yet the outcomes of these diplomatic activities will undoubtedly have significant, if as yet unidentified, implications for economic development in South Carolina.

#### Strategies for Uncertainty

There is now a broad scientific consensus that major changes have taken, and are taking, place in the earth's atmosphere and that these changes will have profound effects on things such as global climate. We in South Carolina will not be immune to these climatic changes. Our problem is that there is almost no scientific consensus on the specifics of these changes. Supporters of the "greenhouse effect" theory hold that the earth is getting warmer; others think the CO<sub>2</sub> buildup will lead to more clouds and a cooler earth. Even if you are willing to choose between these competing theories, scientific knowledge of climatic factors is too thin to allow prediction of the effects of global climate change on anything other than a very coarse scale. None of the models of climate change are fine-grained enough (or can be, given the current state of science) to predict such things as rainfall patterns, growing season, and mean temperatures in South Carolina.

So what we face is the virtual certainty that there will be dramatic climate changes in South Carolina in the next 50-100 years, but almost complete uncertainty about the specific nature of those changes. We could get warmer or cooler, drier or wetter, or, perhaps, even all of these things since some experts think that weather patterns will become much more variable and extreme. All of these changes have implications for how we build highways and bridges, how we should design public structures, what kind of water and sewer systems we need, and hundreds of other things that state and local government in South Carolina must be doing now but that we expect to last and be useful well into the 21st century. The problem is to decide the best strategy for doing things that must be done now but before we know the environment in which our current efforts must bear fruit. If we wait to factor climate change

considerations into our planning until we have more evidence on the precise nature of the coming changes, it may be too late to act to prevent the end of our civilization as we know it.

You think I might be over-dramatizing the possibilities when I speak of the end of civilization as we know it? Yet there is growing scientific evidence that the bronze age was abruptly ended by an unexplained global climate change. Knowing as little as we do about what to expect specifically in the way of looming climate change, we cannot totally discount the possibility that what awaits us will stress our basic institutions as much as the long-ago climate change stressed bronze age culture. Given the uncertainty and the undefined, but greater than zero, probability of climate change that is calamity, what is the best strategy for South Carolina?

Let me assure you very quickly that I do not know what is the best strategy. I do know that strategic planners have grappled with uncertainty for strategic planning that takes uncertainty into account. I would simply suggest to the Board that it might be useful for the state to begin some organized and systematic effort to evaluate those techniques to determine if they can be used in evaluating public expenditures, and particularly capital expenditures, in South Carolina during this time when we appear to be on an environmental cusp.

#### Monitoring Environmental Change

Now let us turn from environmental issues at the global or national scale to a very important, if not very glamorous, issue which can be addressed quite adequately by South Carolina, if there is a will to do so. That issue is development of a rational, comprehensive, systematic and on-going program for monitoring environmental indicators in South Carolina.

Having just completed directing a four-year study at the Thurmond Institute on water policy in South Carolina, I can speak to the issue with greatest authority on the matter of water data. We have a system of stream gaging stations operated by the state and the U.S. Geological Survey, but there are only 67 stations and there are more than 400 delineated water basins in the state. Most streams are not gaged. That means we really do not know very much about the dependable water supply in any given location. It also means we have disputes, as is now occurring between Rep. McLellan's home town and the state, over how much treated sewage a stream can dilute. We know even less about the state's groundwater resources. DHEC maintains a small sample of wells, but not enough to give us a history of what is happening the groundwater levels or groundwater quality in the state. While most of the water now used in the state is drawn from surface streams, we can foresee a time 50 years or so hence when we will have to rely more and more on groundwater. By that time, it is essential we know how much water we can remove from the ground in any given location without long-term drawdown in the water table. If we started today with a program to get these data, it would be hardly time to have the information by the time it will be required.

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Professor Cowen has provided you with an overview of new techniques in organizing and accessing natural resources data, techniques that save money and increase the amount of information that can be extracted from a given amount of data. But GIS systems use data, they do not produce it. South Carolina is not alone among the states in failing to have developed a long-range, on-going scheme for systematically gathering data that allows for monitoring of environmental change throughout the state. Yet, while such data collection often must go on for 30 or 40 years before yielding reliable information needed for policy and management, it could be sustained without taking a large bite out of the state budget. In such data-collection programs, a million dollars can go a long way if used in furtherance of some overarching data-collection plan, but used for piecemeal data collection will produce very little. There are other competing uses for every budget dollar, but without such a data system, South Carolinians in the 21st century will be forced to make a lot of decisions in the dark about environmental facts.

#### Capitalizing on Environmental Amenities

South Carolina has always made use of her natural resources to earn a living in the big world. The first great wealth in the colony came from a rice agriculture made possible by freshwater wetlands on the coastal plain. That rich resource made possible what was the world's first large-scale commercial agriculture producing primarily for the export market. We used ten or twelve inches of Piedmont topsoil to make the next great pile of wealth from growing cotton. Our first manufacturing plants used the falling water of our streams. Now, we are seeing that the South Carolina environment is capable of powering yet another economic boom centered around tourism and retirement. Being blessed by nature in the first place and having industrialized relatively late after the worse environmental consequences of industrial civilization had become evident, South Carolina retains much of its natural environment in good order. The state also has a colorful history that has left cities like Charleston and dozens of little courthouse towns that are unique and romantic. Because the environmental amenities we sometimes take for granted are in increasingly short supply worldwide, the natural/historical environmental amenities of South Carolina have become valuable assets for economic development.

Our first wave of tourism was built around beaches on the Grand Strand and the barrier islands. The coast was also the first major magnet for retirees. Now we see that the mountains and lakes of the interior are attracting retirees who find the climate and cost-of-living favorable to their needs. The American population is aging rapidly and as the baby-boom cohort begins to reach retirement age early in the next century, South Carolina could see its economy transformed in much the same way Social Security transformed Florida. Yet if we allow those amenities to be stomped into the ground by the flood of tourist and retirees, we will assure that those tourists and retirees soon move on and take their dollars with them.

No South Carolinians have a greater stake in the amenity-oriented economy than those in our rural counties. Rural counties have depended

upon agriculture and upon manufacturing, two industries that are going through global transformations that appear not to be favorable to South Carolina. These counties often retain plentiful and varied environmental amenities that they might market to tourists and retirees, and those amenities may now be their most valuable economic assets. Yet we know that the widespread use of agricultural chemicals in the last 25 years threatens the water supply from shallow wells in farm areas, and may threaten deep wells in the future as contaminants percolate down through fissures. Rural counties often have litter problem. They sometimes suffer from inferior complexes that fuel an urge to tear down the quaint old buildings that give charm to their towns and make everything as modern as in the big cities. Striking a balance between preservation and change is never easy, but the economic development prospects for South Carolina, and especially for rural South Carolina, may require that we find a way to hit close to that balance.

### Conclusion

There are many specific issues that you will hear about in the presentations of various agencies, and I doubt that any agency will deal with the big picture topics I have tried to focus upon. Having worked with most of the state's natural resource and environmental agencies over the years, I have a high regard for the professional competence and dedication to public service of the people in the various agencies. But the fragmented structure of natural resource and environmental administration in South Carolina state government does not provide many incentives for thinking about environmental trends and economic development. I have no desire to get into the thicket regarding the pros and cons of consolidating natural resource agencies. But I do suggest to the Board that it may be the only agency of state government presently capable of framing an appropriate environmental strategy for South Carolina.

The fact that I have not talked about wetlands, beachfront management, toxic and nuclear waste disposal, garbage management, water and sewer infrastructure, or other "hot" topics does not mean they are too trivial to be of concern. Actual environmental problems as they are encountered in a practical setting tend to be very specific and concrete in nature. Yet it is important that each specific problem not be dealt with in isolation. Sometimes the easiest solution to one particular problem can exacerbate others. That is why it is vital to see individual problems as part of larger trends---to see each tree as part of a big forest. It is also why it is so important that development of such a strategy not be long delayed.

September 6, 1989

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# EXHIBIT

SEP 6 1989 NO. 1

## VITA

STATE BUDGET & CONTROL BOARD

MARGARET ADELIA DAVIDSON

(803)727-2078

South Carolina Sea Grant Consortium  
287 Meeting Street  
Charleston, South Carolina 29401 USA

BIRTHDATE: March 2, 1950 SOCIAL SECURITY NUMBER: 463-78-6213

EDUCATION: B.A., Political Science, Louisiana State University, 1972  
J.D., Natural Resources Law, L.S.U. Law Center, 1978  
M.M.A., Resource Economics, University of Rhode Island, 1980

## PROFESSIONAL EXPERIENCE:

Adjunct Professor; Institute for Public Affairs & Policy Studies,  
College of Charleston; Department of Agricultural Economics and  
Rural Sociology, Clemson University; Marine Science, University  
of South Carolina.

January 1983 - Present: Executive Director, South Carolina Sea Grant  
Consortium. Responsible for formulating and "brokering" multi-  
institutional, multi-disciplinary research, education, and  
extension programs related to ocean and coastal resources.

August 1982 - December 1982: Acting Director, Consortium.

October 1980 - August 1982: Assistant Director, Consortium.

August 1979 - 1984: Special Counsel, Louisiana Department of Justice.

January 1980 - June 1980: Special Consultant, U.S. Nuclear Regulatory  
Commission.

October 1979 - July 1980: Special Consultant, Rhode Island Coastal  
Resources Management Council.

May 1979 - August 1979: Staff Attorney, Louisiana Department of  
Justice.

January 1975 - May 1979: Owner and manager, small business  
specializing in house restorations.

RELEVANT PUBLICATIONS: Nine publications that deal with natural  
resource management, including global climate change

## PROFESSIONAL MEMBERSHIPS

South Carolina Bar Association	World Aquaculture Society
Nat'l. Assoc. of Wetland Managers	Marine Technology Society
Environ. Law Institute Associate	Coastal Society

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## SGPB Alert

Analysis of  
Emerging Issues

June 1989  
No. 26

Southern  
Growth

Policies Board

# EXHIBIT

SEP 6 1989

NO. 1

STATE BUDGET & CONTROL BOARD

## State Environmental and Natural Resource Investments

### Summary

The South is home to abundant natural resources of high quality—forests, wetlands, coastal waters, and coal among others—providing the South with economic advantages other regions do not enjoy. Industries that provide substantial employment and income in many southern states, such as forest products, fisheries, mining, and recreation and tourism, depend on the conservation and wise use of these natural resources. This issue of *Alert* examines one measure of the southern states' efforts to maintain high quality natural resources: state environmental and natural resource investments.

In some environmental and natural resource categories, the South invests more than the national average; and two of the poorer southern states, Mississippi and Kentucky, invest more across the board relative to the nation. On average, however, southern states invest less in conserving and developing their natural resources than do states in other regions, even accounting for differences in overall state spending and the economic strength of states. In total, southern states reported investing nearly \$900 million in a range of environmental and natural resource (ENR) conservation and development categories in 1986.

The southern states, on average, invested about \$15 per Southerner in

ENR, compared to over \$24 per person by states outside of the South. Southern states allocated 1.1 percent of total state spending to ENR, compared to 1.6 percent for the states outside of the South.

Differences in the relative economic strength of regions did not account for the South's lower levels of investment. On average, southern states invested lower percentages of gross state product—a measure of the goods and services produced in a state—and total personal income in ENR than did states in other regions.

In ten broad ENR categories, southern states spent relatively more on average than the rest of the country on forestry, mining reclamation, and land management. Southern states spent relatively about the same as non-southern states on soil conservation. Southern states spent the least relative to the rest of the country on waste management and water resources. Water resources nevertheless claimed a large share of southern ENR investments.

Spending by category differed among states, reflecting different priorities and the differing extent of particular natural resources in each state. Aggregate spending may be a useful benchmark for state environmental and natural resource efforts, but the data do have limitations. Spending figures cannot reflect how effective the spending is nor whether a proper balance between conserving and developing resources is being struck. Also, the data are for one point in time

*Creating strategies for  
economic development*

5001 South Miami Blvd.  
PO Box 12293  
Research Triangle Park  
North Carolina 27709  
919-941-5145

Route To

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This report was prepared by John Hodges-Copple, Staff Associate for Research and Programs. Copies are available from the Southern Growth Policies Board for \$3.00.

02653

and do not reflect year-to-year fluctuations or long-term trends. Finally, not all environmental and natural resource investments, such as some acquisition programs, may be reflected in the figures.

What remains clear is that during a period when public opinion polls demonstrate substantial support for increased environmental spending throughout the South, southern states invest relatively less than other states in the conservation and development of natural resources.

### Introduction

Recent research by the Council of State Governments and the Bureau of Economic Analysis permit an analysis of

state environmental and natural resource investments not previously possible. In 1988, the Council published a resource guide on state environmental management which, among other information, included 1986 state spending on an array of environmental and natural resources categories.<sup>1</sup> Also in 1988, the Bureau published estimates of 1986 gross state product for each state.<sup>2</sup> Gross state product, analogous to gross domestic product at the national level, is a measure of the gross market value of goods and services attributable to labor and property located within a state and serves as a measure of economic output.

Analyzing state environmental and natural resource spending relative to gross state product and other measures

"On average, southern states invested lower percentages of gross state product—a measure of the goods and services produced in a state—and total personal income in ENR than did states in other regions."

Figure 1

### Environmental and Natural Resource Spending Categories

<i>Council of State Governments</i>	<i>This Report</i>
Air Pollution	Air Resources
Indoor Air Pollution	
Drinking Water	Water Resources
Watershed Management Districts	
Water Quality	
Water Resources	
Marine and Coastal Programs	
Solid Waste	Waste Management
Hazardous Waste	
Nuclear Waste	
Forestry	Forestry
Fish and Wildlife	Fish and Wildlife
Geological Survey	Geological Survey
Land Management	Land Management
Pesticides Control	Pesticides Control
Soil Conservation	Soil Conservation
Mining Reclamation	Mining Reclamation

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such as population, total personal income, and total state spending, permits comparisons between the South and the remainder of the nation on efforts to conserve and develop natural resources and protect the environment.

The Council of State Governments collected information on 17 categories of environmental and natural resource spending, shown in the first column of *Figure 1*. Because of different ways of reporting spending data among states, these 17 categories were collapsed into the ten categories shown in the second column of *Figure 1*. The appendix describes these categories in more detail.

Although each dollar of spending is assigned to a specific category, in reality it is difficult to narrowly classify environmental spending because environmental concerns overlap. Marine and coastal programs and watershed management districts, for example, may have significant land management aspects although they

tend to be primarily water resource related.

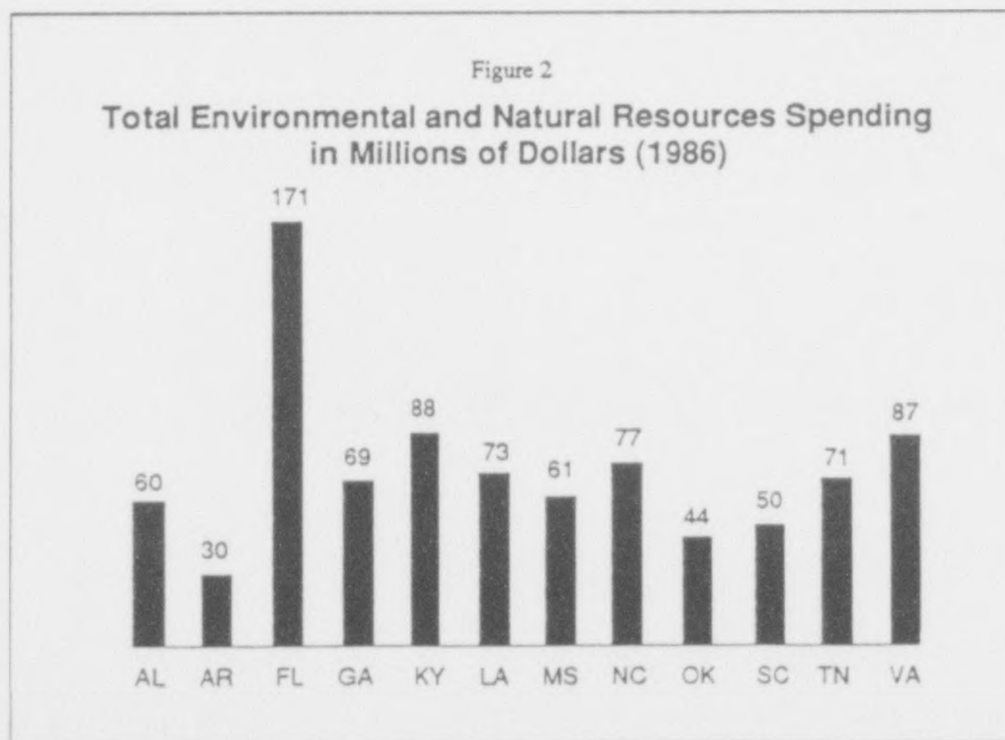
The spending totals reported by the Council of State Governments consist of all state, federal, and other monies *which have passed through the state budgetary process*. The Council notes that local government environmental spending is significant in many states, but is not reflected unless it passes through the state budget.

### State Investment Patterns

The southern states reported investing about \$883 million in 1986 in the ten environmental and natural resource categories shown in the second column of *Figure 1*. *Figure 2* shows total ENR investments by state.

*Figure 3* (see p. 4) shows how each state allocated its environmental and natural resource investments by category. The figure displays how many dollars were spent on the top four categories in each state for every 100 dollars of total ENR spending.

"Water resources, forestry, and fish and wildlife receive the largest amounts of investments, both within the South and in the rest of the nation."



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Water resources, forestry, and fish and wildlife receive the largest amounts of investments, both within the South and in the rest of the nation. With the exception of **Kentucky**—which spends a substantial amount on mining reclamation—water resources, forestry, and fish and wildlife spending account for between 64 and 91 dollars of every 100 dollars of ENR spending in each southern state. Overall, these three categories account for 71 dollars of every 100 dollars of ENR spending in the South and 73 dollars of every 100 dollars outside of the South.

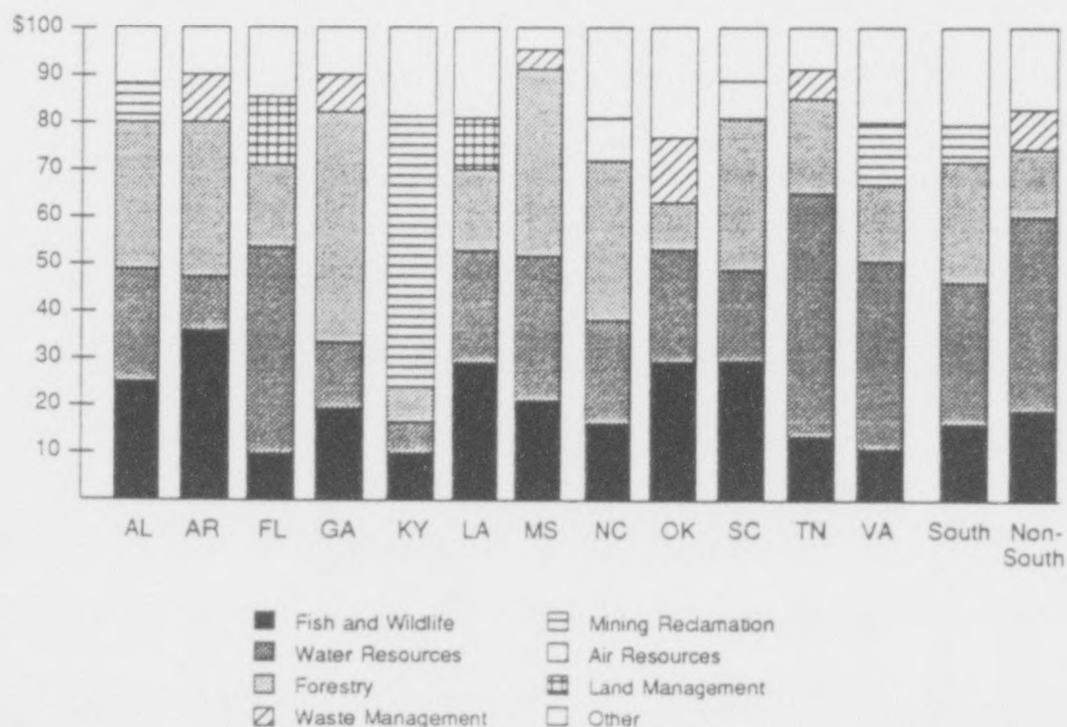
Figure 4 summarizes some demographic and economic measures in the South as a percentage of national totals, including investments in the environment and natural resources.<sup>3</sup>

In 1986, for example, 24.3 percent of the population lived in the 12 member states of the Southern Growth Policies Board. These southern states generated 21.4 percent of the aggregate gross state product and 21.2 percent of total personal income in the nation, indicating that per capita personal income and per capita gross state product were lower in the South than in the remainder of the U.S. On average, southern states also spent less in total per capita than states outside the region, since 22.9 percent of total state spending nationwide occurred in the South.

Figure 4 shows that relative to its economic resources—whether measured by gross state product or total personal income—the South invests relatively more than the rest of the

Figure 3

### Spending in Top Four Categories in Each State for Every \$100 of Total State Environmental and Natural Resource Spending



nation in forestry, land management, and mining reclamation. In addition, the South invests almost the same relative to the rest of the nation in soil conservation. But in other critically important categories, such as air resources, water resources, and waste management, southern spending falls short of that outside of the South. For example, although 21 percent of the nation's personal income and gross domestic product is attributable to the South, only 12 percent of state investments in water resources and waste management occur in the South.

Figures 5 through 8 examine environmental and natural resource investments in the South in more detail.

Figure 5 (see p. 6) shows per capita environmental and natural resource spending in each southern state and for the region as a whole. Southern states spent an average of 15 dollars per

person on ENR in 1986 as compared to 24 dollars per person in states outside the region. There is a wide range of per capita spending among states in the South, from a low of \$11.30 to a high of \$23.72. Only Kentucky, with large mining reclamation expenditures, and Mississippi, with large forestry expenditures, had per capita spending above the 22 dollar national average.

Figures 6 and 7 (see pp. 6 and 7) show spending as a percent of two measures of the economic resources available to states, total personal income and gross state product. These "ability to pay" measures may be fairer indications of state efforts, since they recognize that southern states tend to be poorer than states outside the region. On average, southern states spent 12 cents of every 100 dollars in total personal income on ENR, as compared to 16 cents of every 100 dollars in states outside the region. Spending ranged from a low of eight

"...the South invests relatively more than the rest of the nation in forestry, land management, and mining reclamation. But in other critically important categories, such as air resources, water resources, and waste management, southern spending falls short of that outside of the South."

Figure 4

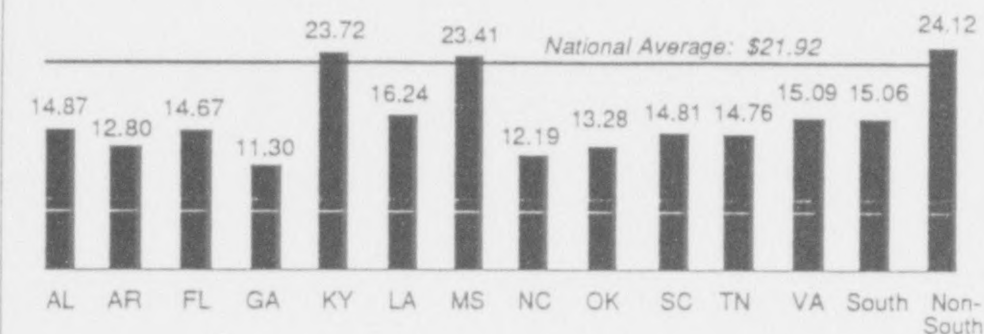
### Demographic and Economic Measures of the Southern States as a Percent of the U.S. (1986)



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Figure 5

### Environmental and Natural Resources Spending Per Capita (1986)

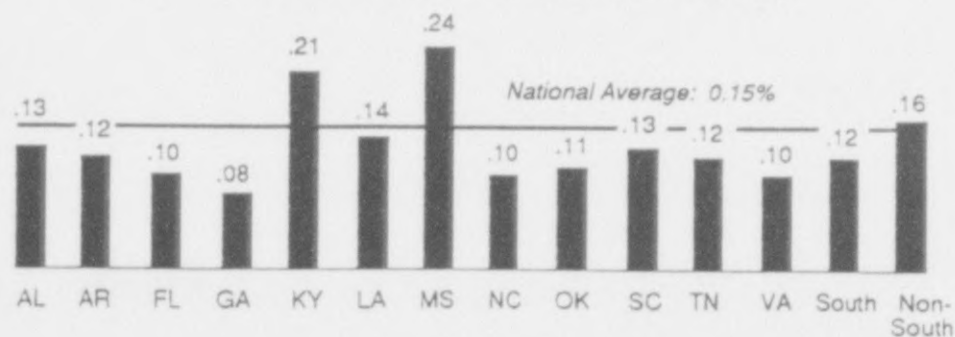


cents to a high of 24 cents. Results were similar for ENR spending as a percent of gross state product. Southern states spent an average of 10 cents per 100 dollars versus 13 cents per 100 dollars outside the South. With both of these measures, however, again only Kentucky and Mississippi exceed the national averages, although other states register closer to the national average than under the per capita spending measure.

Figure 8 (see p. 8) shows ENR spending as a percent of total state expenditures in each state, indicating the relative importance of natural resource conservation and development compared to other public concerns. On average, southern states devote \$1.06 to the environment and natural resources out of every 100 dollars of total state spending. States outside of the South devote an average of \$1.57 of every 100 dollars in total spending to the environ-

Figure 6

### Environmental and Natural Resources Spending As a Percent of Total Personal Income (1986)





ment and natural resources. Spending in the South ranged from a low of 83 cents to a high of \$1.83 for each 100 dollars in total state spending. Kentucky and Mississippi are the two southern states that exceed the national average.

### Commentary

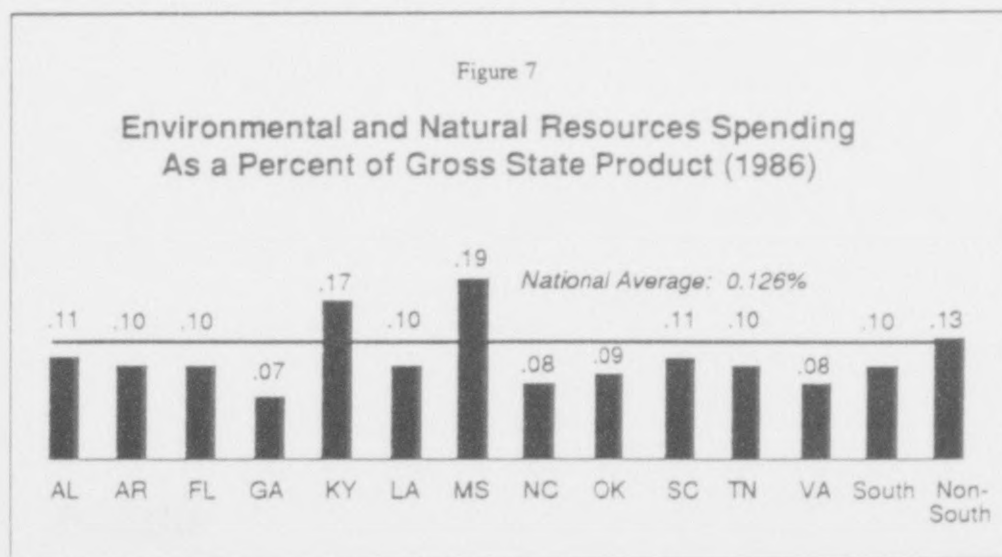
Care should be used in drawing conclusions from the data, since ENR spending is a broad measure that may obscure the reasons behind and the results of the levels of spending in particular states. Some of the difference in ENR spending among states, for example, is due to the nature and condition of natural resources in the states. To use one example, Oklahoma, without a coastline and with less extensive forests than most other southern states, might be expected to spend less on the environment and natural resources unless other natural resources are more prominent in Oklahoma than other states. In other cases, resource abundance might lead to lower spending if threats to the resource are small or are thought insignificant relative to the quantity of the resource. Relatively low spending on water resources may be due in part

to the legacy of plentiful, inexpensive water in the South, even though in many areas, high-quality undeveloped water supplies no longer exist or are disappearing rapidly.

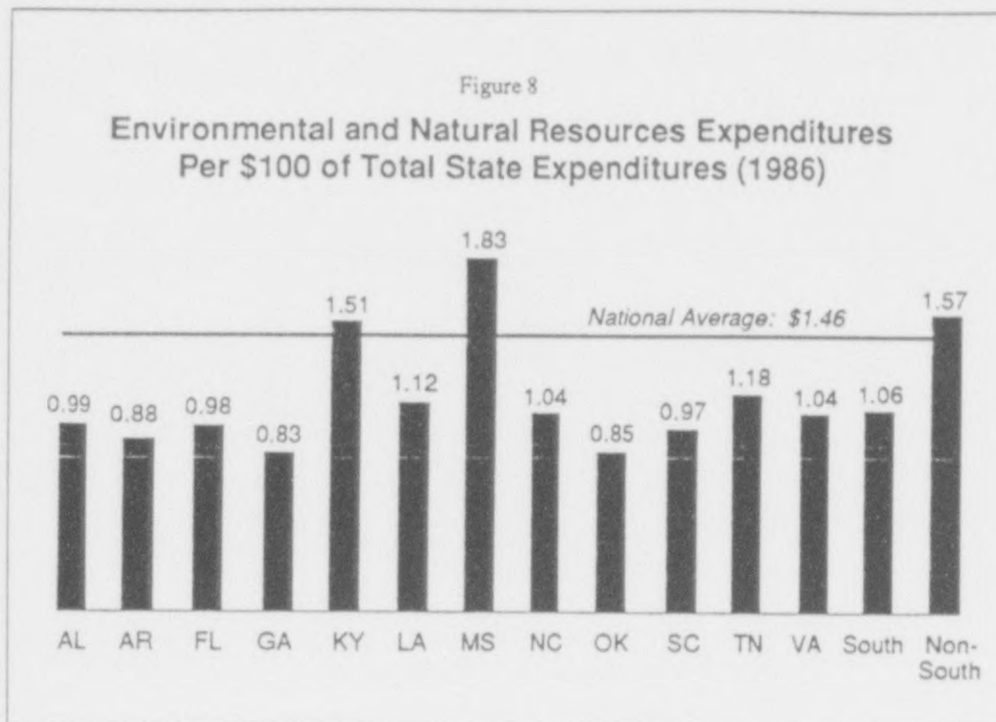
In addition, since the data include federal monies that pass through the state budgetary process, federal legislation and grants may influence state spending levels, regardless of state decisions on how much of their own funds to devote to environmental and natural resource spending.

Data on levels of spending also can not reflect how well money is spent—whether environmental and natural resource objectives are accomplished in the most efficient way. For example, North Carolina, with a long coastline and extensive estuaries, is generally considered to have one of the better marine and coastal programs in the nation, yet it spends relatively little on the program compared to some other coastal states.

The data include spending to both conserve and develop resources and states may differ over the proper division between the public and private sectors in paying the costs to develop



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or support the development of natural resources, forestry being one example. The data make no distinctions between conservation and development spending—to the degree such distinctions can be made—or whether a “proper balance” is being struck. For example, some state expenditures to develop a resource in the short term may be detrimental to the long term sustainability of the resource.

Finally, the data are for a particular point in time and for a broad but not necessarily all-inclusive array of environmental and natural resource categories. Periodic collection of the data for subsequent years would be necessary to show trends or fluctuations.

There is nothing inherently wrong with the South investing less in the environment and natural resources than other regions and in some instances, such as those described above, there may be ample justification for doing so. But

the relatively low investment levels could place the region at a disadvantage in ensuring high quality resources to provide future economic benefits. The relatively low levels may also conflict with growing support in the South for greater spending on the environment. In annual public opinion polling, people living in the Census South who think more should be spent on improving and protecting the environment has grown from 48 percent in 1980 to 64 percent in 1988, while the percentage thinking less should be spent as shrunk from 17 percent to seven percent.<sup>4</sup>

### Endnotes

<sup>1</sup> R. Steven Brown and L. Edward Garner, *Resource Guide to State Environmental Management* (Lexington, KY: The Council of State Governments, 1988) 198 pp.

<sup>2</sup> Vernon Renshaw, Edward Trott, Jr., and Howard Friedenberg, “Gross State Product by Industry,” *Survey of Current*

*Business* (Washington, DC: U.S. Department of Commerce, Bureau of Economic Analysis, May 1988) pp. 30-46.

<sup>3</sup> Population and personal income data are from: Bureau of the Census, *Statistical Abstract of the United States, 1988* (Washington, DC: U.S. Department of Commerce, December 1987) p. 22, 416.

<sup>4</sup> National Opinion Research Center, *General Social Surveys 1972-1988: Cumulative Codebook*, conducted for the National Data Program for the Social Sciences (Storrs, CT: The Roper Center for Public Opinion Research, University of Connecticut, July 1988) question #69. Search and computer assistance provided by David Sheaves and Diana McDuffee of the University of North Carolina at Chapel Hill Institute for Research in the Social Sciences.

## Appendix

### *Description of Council of State Governments Environment and Natural Resource Categories*

Source: Brown and Garner, pp. 81-82

Spending totals reflect expenditures in the state budget for the 1986 Fiscal Year.

*Air Pollution:* Agencies which administer the state clean air laws and Clean Air Act.

*Drinking Water:* The administration of the Safe Drinking Water Act, as well as pertinent state public drinking water laws.

*Forestry:* Agencies which manage and protect state forest resources.

*Fish and Wildlife:* Agencies which protect, manage, and enhance fish and wildlife resources and enforce state fish and game laws.

*Geological Survey:* Agencies which conduct research on terrain, mineral resources, and possible geological hazards such as earthquakes and landslides.

*Hazardous Waste:* Agencies which develop and maintain a comprehensive hazardous waste management program.

*Indoor Air Pollution:* Agencies which regulate asbestos and monitor radon and other indoor pollutants.

*Land Management:* Agencies which manage state-owned natural resources, not including state parks.

*Marine and Coastal Programs:* Agencies which plan and implement programs for the orderly development of coastal zones.

*Nuclear Waste:* Agencies which develop and maintain a comprehensive low-level and high-level nuclear waste management program.

*Pesticides Control:* Agencies which monitor the sale and use agricultural pesticides.

*Soil Conservation:* Agencies which coordinate programs to conserve and protect the soil.

*Mining Reclamation:* Agencies which enforce mining reclamation standards.

*Solid Waste:* Agencies which develop and maintain a comprehensive solid waste management program.

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*Watershed Management Districts:*

Agencies which promote conservation of soil, water, and other related resources within given watersheds by erosion prevention, flood control, and sediment control.

*Water Quality:* Agencies responsible for water quality protection programs, specifically the Clean Water Act.

*Water Resources:* Agencies responsible for water conservation, development, use, and planning.

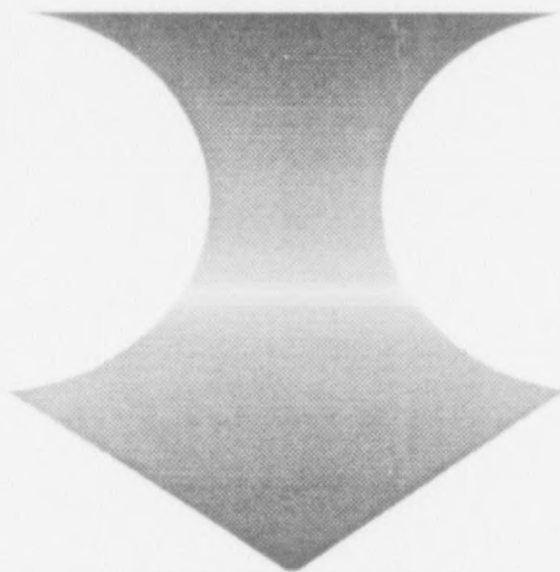
EXHIBIT

SEP 6 1989

NCL 1

STATE BUDGET & CONTROL BOARD

**PROBLEMS**



**OPPORTUNITIES**

The South Carolina Sea Grant Consortium  
builds institutional capabilities to convert  
coastal problems into economic  
opportunities.

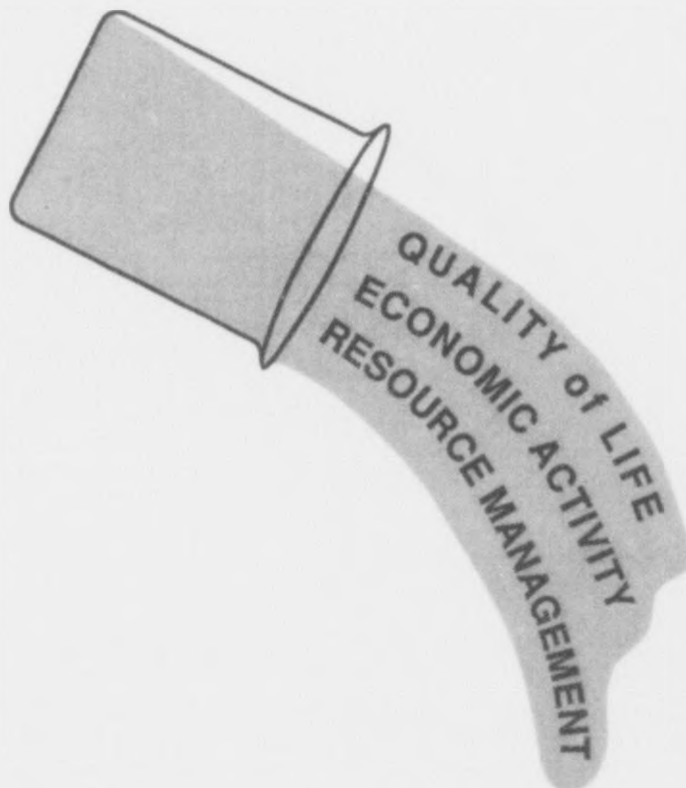


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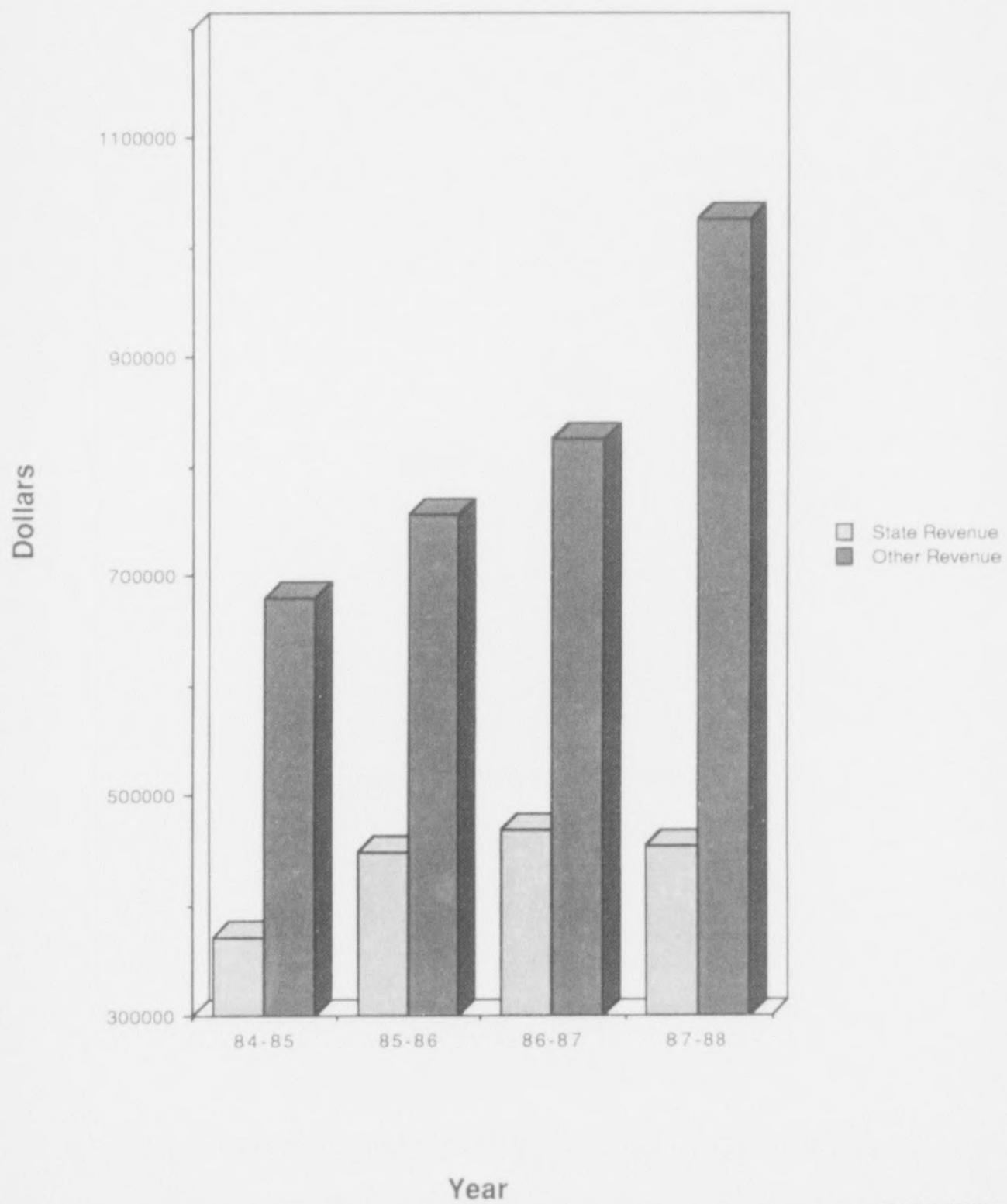
We do this by identifying resource issues, then providing support to combine institutional capabilities to address related opportunities.

The Consortium acts as an institutional catalyst; small relative to other participants, but precipitating significant interactions to achieve new results.



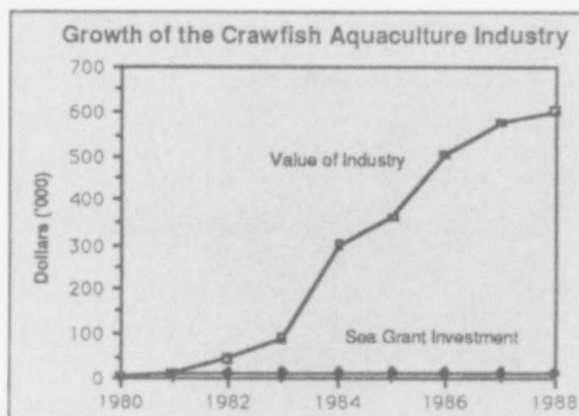
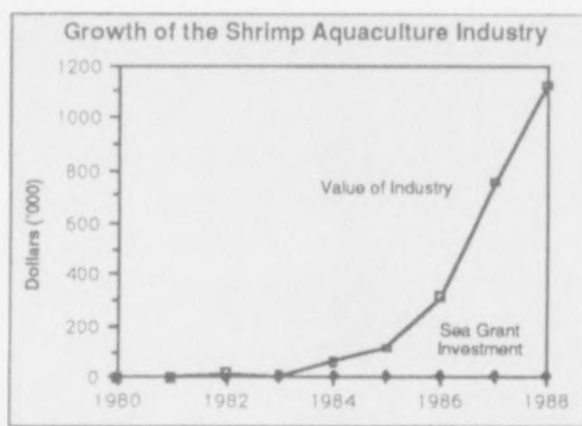


## S. C. Sea Grant Consortium Income by Source



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This catalytic approach means that the Consortium generates returns that exceed the State's investment: In terms of direct dollars, this investment has consistently yielded a greater amount of non-state income, and during the past four fiscal years the proportion of non-state revenue has steadily increased.



We also generate returns in the form of new economic opportunities. The first crustacean aquaculture work in South Carolina was funded by the Consortium. These early crawfish and shrimp culture projects generated much larger interest among other funding entities, and new industries are becoming established in their own right.



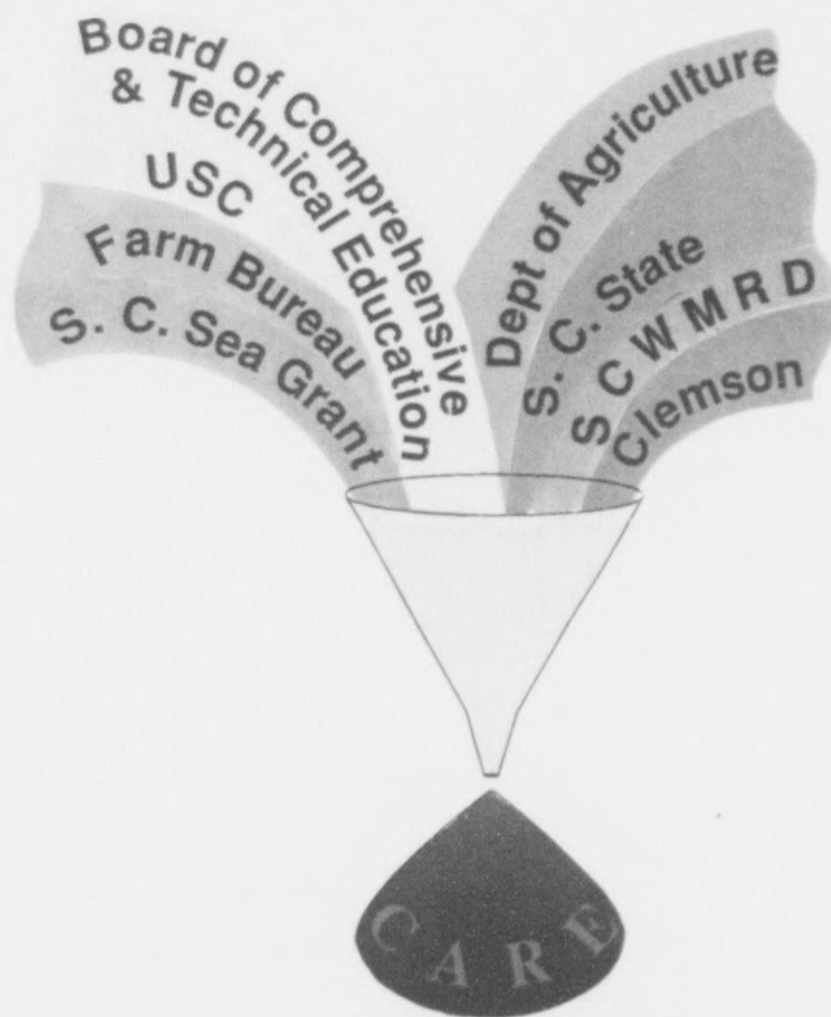


We continue to provide support for identifying other promising species for aquaculture, as well as working with legislative and a variety of other agencies to improve the climate for progress in aquaculture through development of the South Carolina Aquaculture Plan.



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We now look toward two major areas of need and opportunity:

The first is the need to strategically build and enhance economic opportunities associated with aquaculture. To meet this need, we are catalyzing a multi-institutional initiative known as CARE: the Carolina Aquaculture Research and Education Program.



# EXHIBIT

SEP 6 1989

NO. 1

STATE BUDGET & CONTROL BOARD



The second area of challenge derives from changes that are taking place in our coastal water quality and fisheries. We need to identify and address these changes, because they directly affect fully 70% of our tourism revenue. We propose to launch a Coastal Ocean Initiative to build the capabilities needed to meet this challenge.



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**Professional  
Staff**

+

**Information  
Technology**

+

**Seed  
Funds**

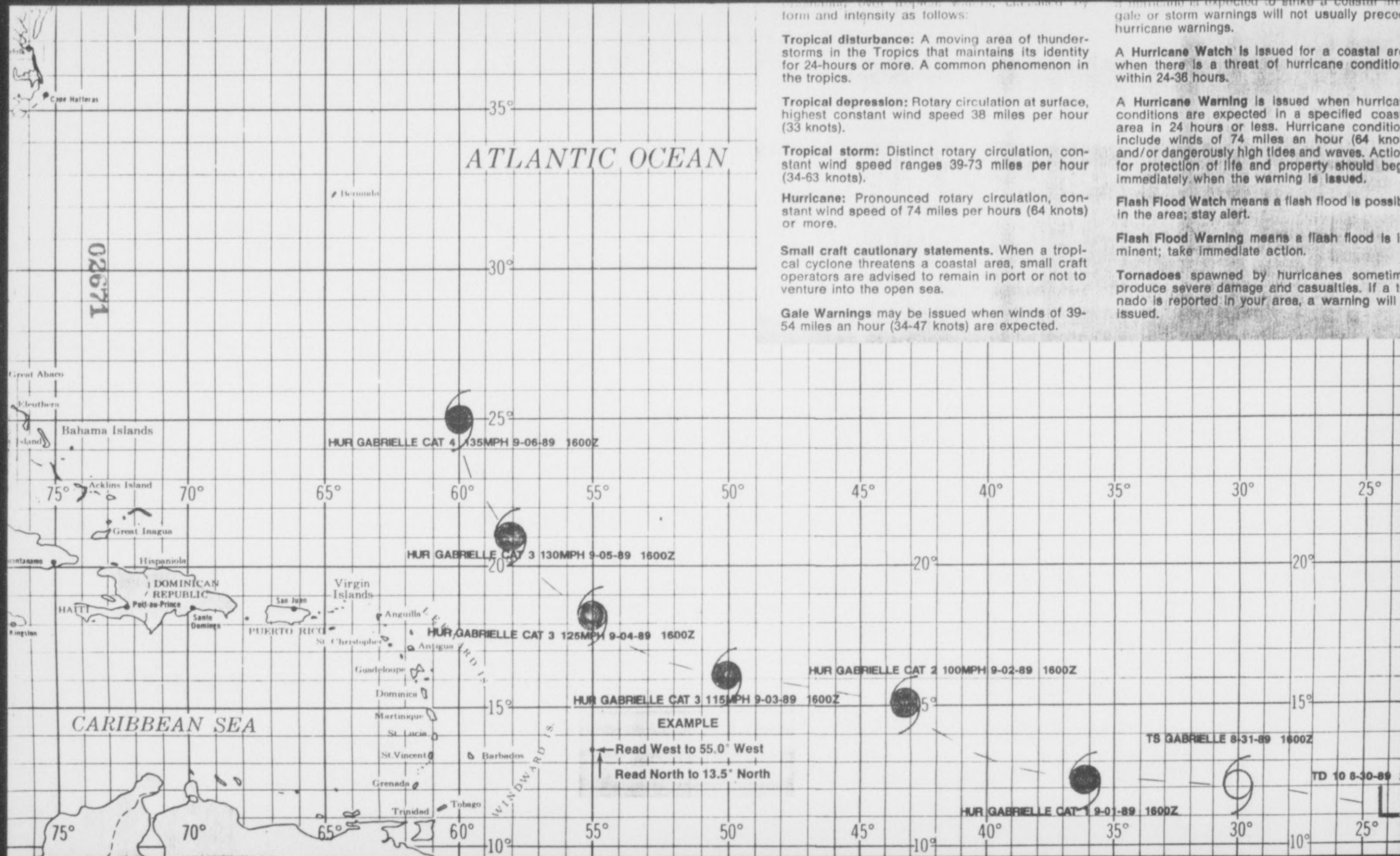
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**Sea Grant:  
a catalyst for  
economic development**

The central element of our effort to pursue these initiatives is to enhance our ability to function as an institutional catalyst. This enhancement does not mean an increase in the size of our program, but rather an increase in quality. This translates to support for upgrading salaries of existing staff, improved information management technology, and seed funds with which to pursue our efforts targeted toward aquaculture and the coastal ocean







...form and intensity as follows:

**Tropical disturbance:** A moving area of thunderstorms in the Tropics that maintains its identity for 24-hours or more. A common phenomenon in the tropics.

**Tropical depression:** Rotary circulation at surface, highest constant wind speed 38 miles per hour (33 knots).

**Tropical storm:** Distinct rotary circulation, constant wind speed ranges 39-73 miles per hour (34-63 knots).

**Hurricane:** Pronounced rotary circulation, constant wind speed of 74 miles per hours (64 knots) or more.

**Small craft cautionary statements.** When a tropical cyclone threatens a coastal area, small craft operators are advised to remain in port or not to venture into the open sea.

**Gale Warnings** may be issued when winds of 39-54 miles an hour (34-47 knots) are expected.

...hurricane is expected to strike a coastal area, gale or storm warnings will not usually precede hurricane warnings.

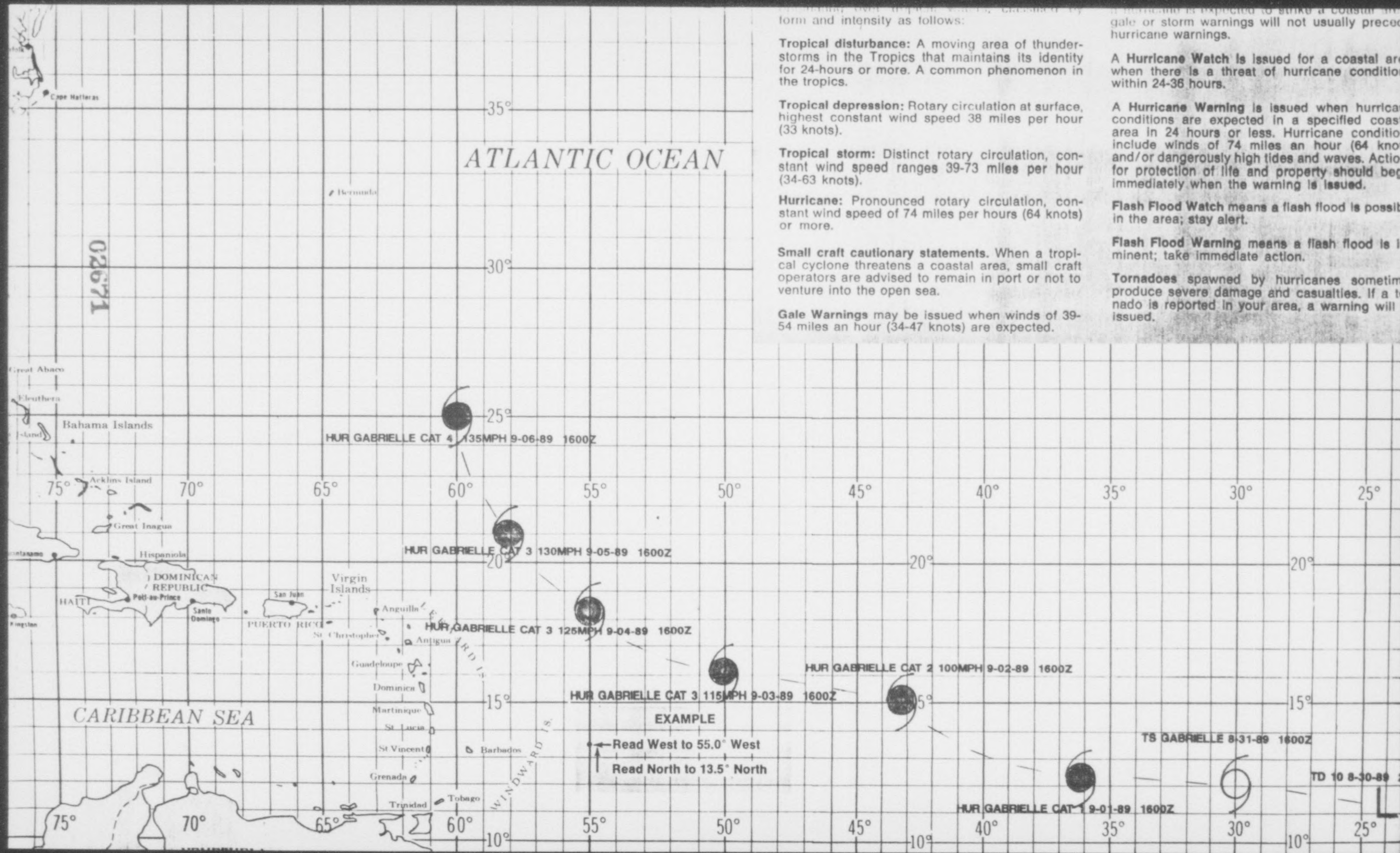
**A Hurricane Watch** is issued for a coastal area when there is a threat of hurricane conditions within 24-36 hours.

**A Hurricane Warning** is issued when hurricane conditions are expected in a specified coastal area in 24 hours or less. Hurricane conditions include winds of 74 miles an hour (64 knots) and/or dangerously high tides and waves. Action for protection of life and property should begin immediately when the warning is issued.

**Flash Flood Watch** means a flash flood is possible in the area; stay alert.

**Flash Flood Warning** means a flash flood is imminent; take immediate action.

**Tornadoes** spawned by hurricanes sometimes produce severe damage and casualties. If a tornado is reported in your area, a warning will be issued.



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TTAA00 KNUC 061513

BULLETIN

HURRICANE GABRIELLE ADVISORY NUMBER 20

NATIONAL WEATHER SERVICE MIAMI FL

NOON AST WED SEP 6 1989

EXHIBIT

SEP 6 1989

NO. 1

STATE BUDGET & CONTROL BOARD

...SWELLS AFFECTING BERMUDA AND U.S. EAST COAST...

REPORTS FROM BERMUDA...FLORIDA...NORTH CAROLINA AND MARYLAND INDICATE THAT INCREASING SWELLS ARE AFFECTING THOSE COASTS. SWELLS IN BERMUDA ARE NOW 10 TO 15 FEET AND RANGE FROM 5 TO 10 FEET ALONG THE EAST COAST OF THE U.S. FROM FLORIDA NORTHWARD TO THE MID ATLANTIC STATES. HEAVY SURF ADVISORIES ARE BEING ISSUED BY LOCAL NATIONAL WEATHER SERVICE OFFICES FOR SOME AREAS.

AT NOON AST...1600Z...THE CENTER OF POWERFUL HURRICANE GABRIELLE WAS LOCATED NEAR LATITUDE 24.7 NORTH...LONGITUDE 59.7 WEST...OR ABOUT 610 MILES...790 KM...SOUTH SOUTHEAST OF BERMUDA.

THE HURRICANE IS MOVING TOWARD THE NORTH NORTHWEST AT 12 MPH...19 KM/HR. A LITTLE MORE NORTHERLY COURSE IS EXPECTED DURING THE NEXT 24 HOURS. THE CENTRAL PRESSURE IS 944 MILLIBARS...27.99 INCHES AND

THE MAXIMUM SUSTAINED WINDS REMAIN NEAR 135 MPH. LITTLE CHANGE IN STRENGTH IS EXPECTED DURING THE NEXT 24 HOURS. GABRIELLE IS A LARGE AND POWERFUL HURRICANE WITH TROPICAL STORM FORCE WINDS EXTENDING OUTWARD 300 MILES EAST OF THE CENTER AND NEAR 200 MILES WEST OF THE CENTER. THIS WIND FIELD IS GENERATING THE LARGE SWELLS BEING REPORTED OVER A LARGE PORTION OF THE WESTERN NORTH ATLANTIC.

REPEATING THE NOON AST POSITION...24.7N 59.7W. MOVEMENT NORTH NORTHWESTWARD AT 12 MPH. HIGHEST SUSTAINED WINDS 135 MPH. MINIMUM PRESSURE 944 MB.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 6 PM AST.

SHEETS

ADVISORY NUMBER 20 HURRICANE GABRIELLE PROBABILITIES  
FOR GUIDANCE IN HURRICANE PROTECTION PLANNING  
BY GOVERNMENT AND DISASTER OFFICIALS

CHANCES OF CENTER OF GABRIELLE PASSING WITHIN 65 MILES OF

LISTED LOCATIONS THROUGH 0 AM AST SAT SEP 9 1989

CHANCES EXPRESSED IN PER CENT...TIMES AST

COASTAL LOCATIONS	THRU 0 AM THU	ADDITIONAL PROBABILITIES				TOTAL THRU 0 AM SAT
		0 AM THU	0 PM THU	0 AM FRI	0 AM FRI	
		THRU 0 PM THU	THRU 0 AM FRI	THRU 0 AM SAT	THRU 0 AM SAT	
28.0N 60.6W	37	X	X	X		37
30.3N 61.1W	7	11	1	1		22
32.5N 61.1W	X	10	4	2		16
BERMUDA	X	4	4	4		12

X MEANS LESS THAN ONE PERCENT

02672



NNNNZCZC MIAICMAT5  
TTAA00 KNHC 061520  
HURRICANE GABRIELLE MARINE ADVISORY NUMBER 20  
NATIONAL WEATHER SERVICE MIAMI FL  
1600Z WED SEP 06 1999

HURRICANE CENTER LOCATED NEAR 24.7N 59.7W AT 06/1600Z.  
POSITION ACCURATE WITHIN 20 MILES BASED ON AIRCRAFT  
AND SATELLITE.

PRESENT MOVEMENT TOWARDS THE NORTH NORTHWEST OR 330 DEGREES AT 10 KT.

DIAMETER OF EYE 50 NM.  
MAX SUSTAINED WINDS 120 KT WITH GUSTS TO 140 KT.  
RADIUS OF 64 KT WINDS 100NE 75SE 50SW 75NW.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
RADIUS OF 34 KT WINDS 250NE 200SE 175SW 200NW.  
RADIUS OF 12 FT SEAS OR HIGHER 250NE 200SE 175SW 200NW.

REPEAT CENTER LOCATED AT 24.7N 59.7W AT 06/1600Z.

FORECAST VALID 07/0000Z 26.0N 60.1W.  
MAX SUSTAINED WINDS 115 KT WITH GUSTS TO 135 KT.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
RADIUS OF 34 KT WINDS 250NE 200SE 175SW 200NW.

FORECAST VALID 07/1200Z 28.0N 60.6W.  
MAX SUSTAINED WINDS 115 KT WITH GUSTS TO 135 KT.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
RADIUS OF 34 KT WINDS 250NE 200SE 175SW 200NW.

FORECAST VALID 08/0000Z 30.3N 61.1W.  
MAX SUSTAINED WINDS 115 KT WITH GUSTS TO 135 KT.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
RADIUS OF 34 KT WINDS 250NE 200SE 175SW 200NW.

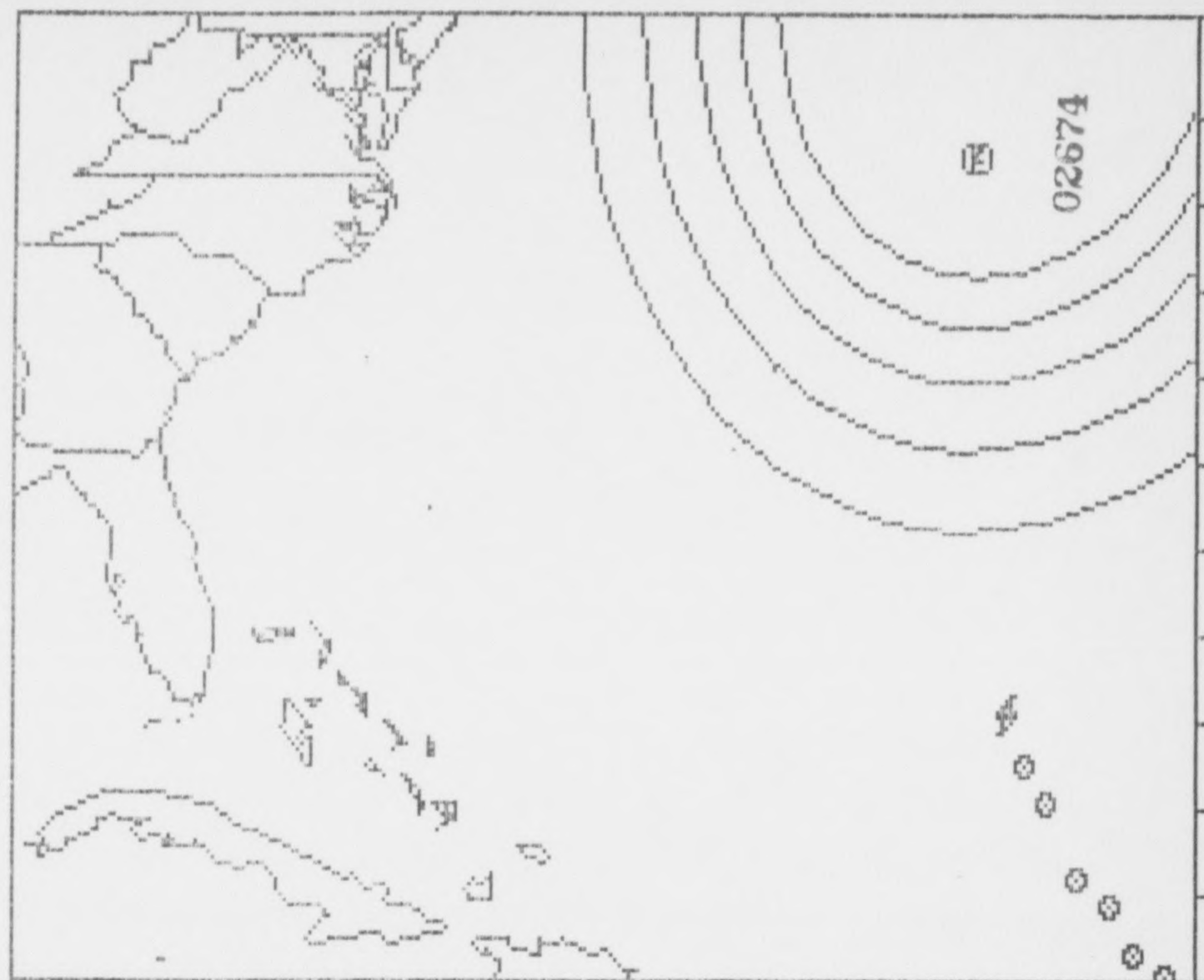
REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 24.7N 59.7W.

#### EXTENDED OUTLOOK

THE FOLLOWING FORECASTS SHOULD BE USED ONLY FOR GUIDANCE  
PURPOSES BECAUSE ERRORS MAY EXCEED A FEW HUNDRED MILES

OUTLOOK VALID 08/1200Z 32.5N 61.1W.  
MAX SUSTAINED WINDS 115 KT WITH GUSTS TO 135 KT.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
OUTLOOK VALID 09/1200Z 37.0N 60.5W.  
MAX SUSTAINED WINDS 110 KT WITH GUSTS TO 130 KT.  
RADIUS OF 50 KT WINDS 125NE 100SE 75SW 100NW.  
NEXT ADVISORY AT 06/2200Z.

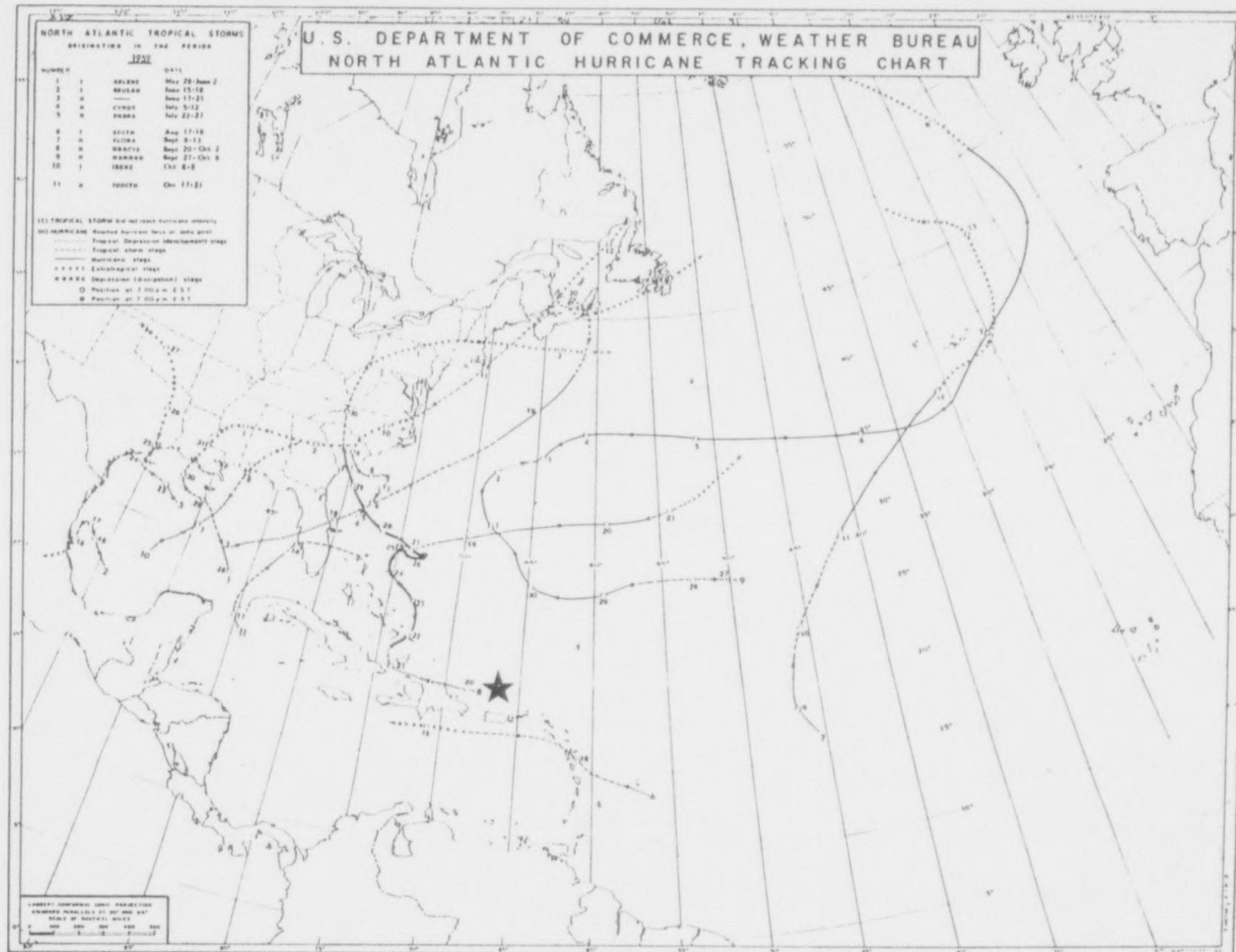
02673



SC STATE CLIMATOLOGY OFFICE

HURRICANE GABRIELLE CAT 4 135+MPH

NATIONAL HURRICANE CENTER 72 HOUR FORECAST ESTIMATE 9-06-89 1600Z



GRACIE

127

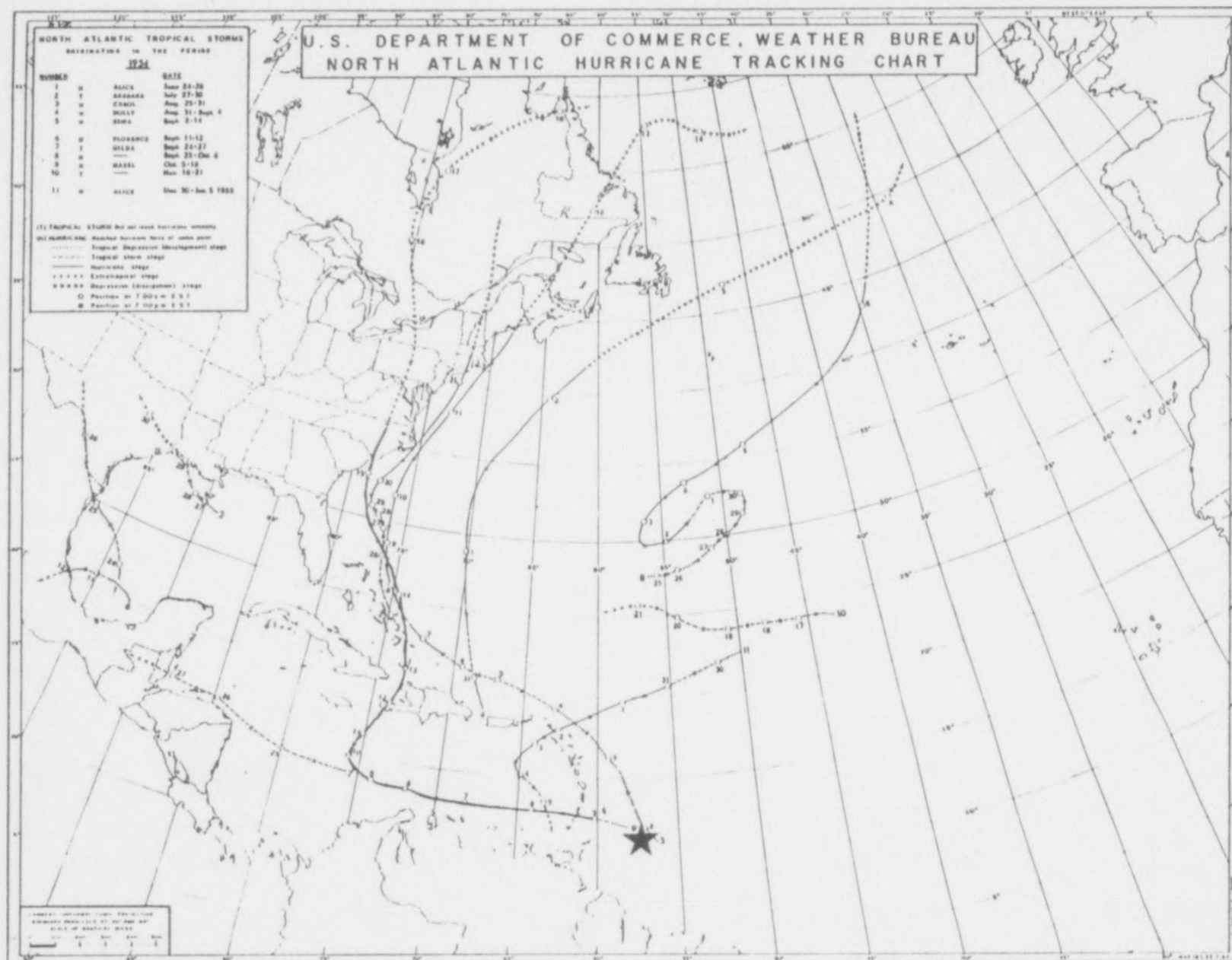
02675

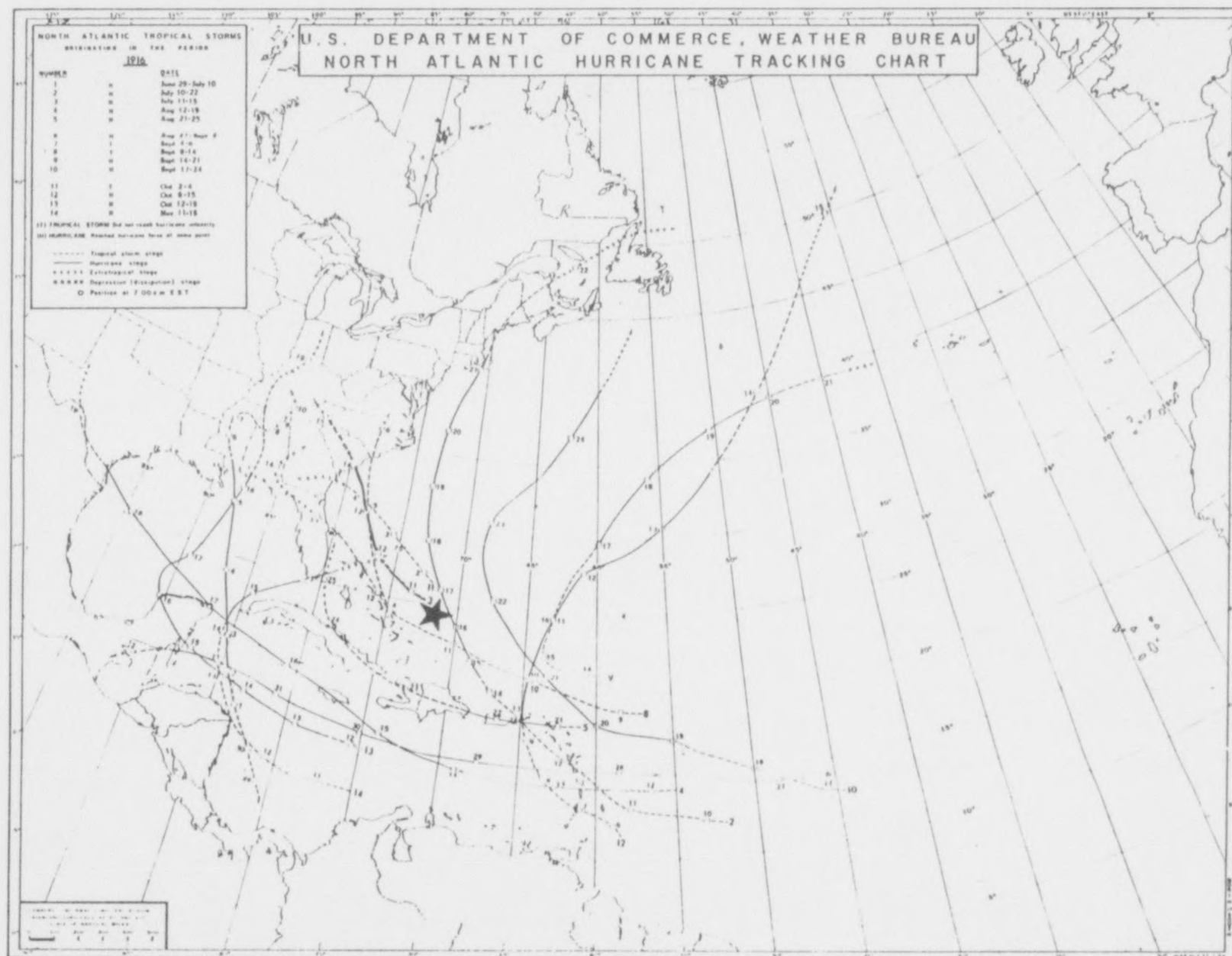
show over the North Atlantic.

Marine Weather  
**Log**

10



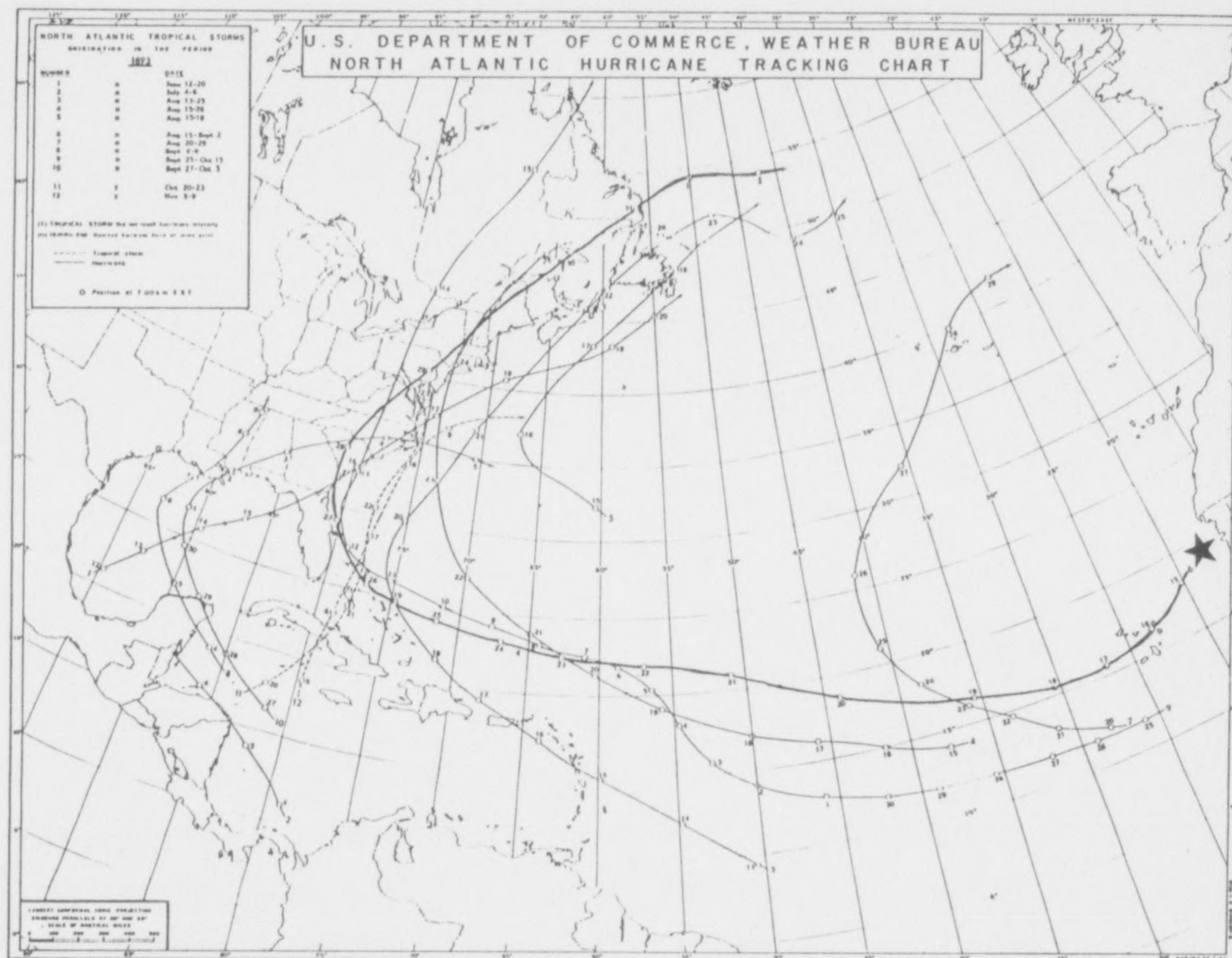




**1916 BULLS BAY S.C.'s GREAT FLOOD**

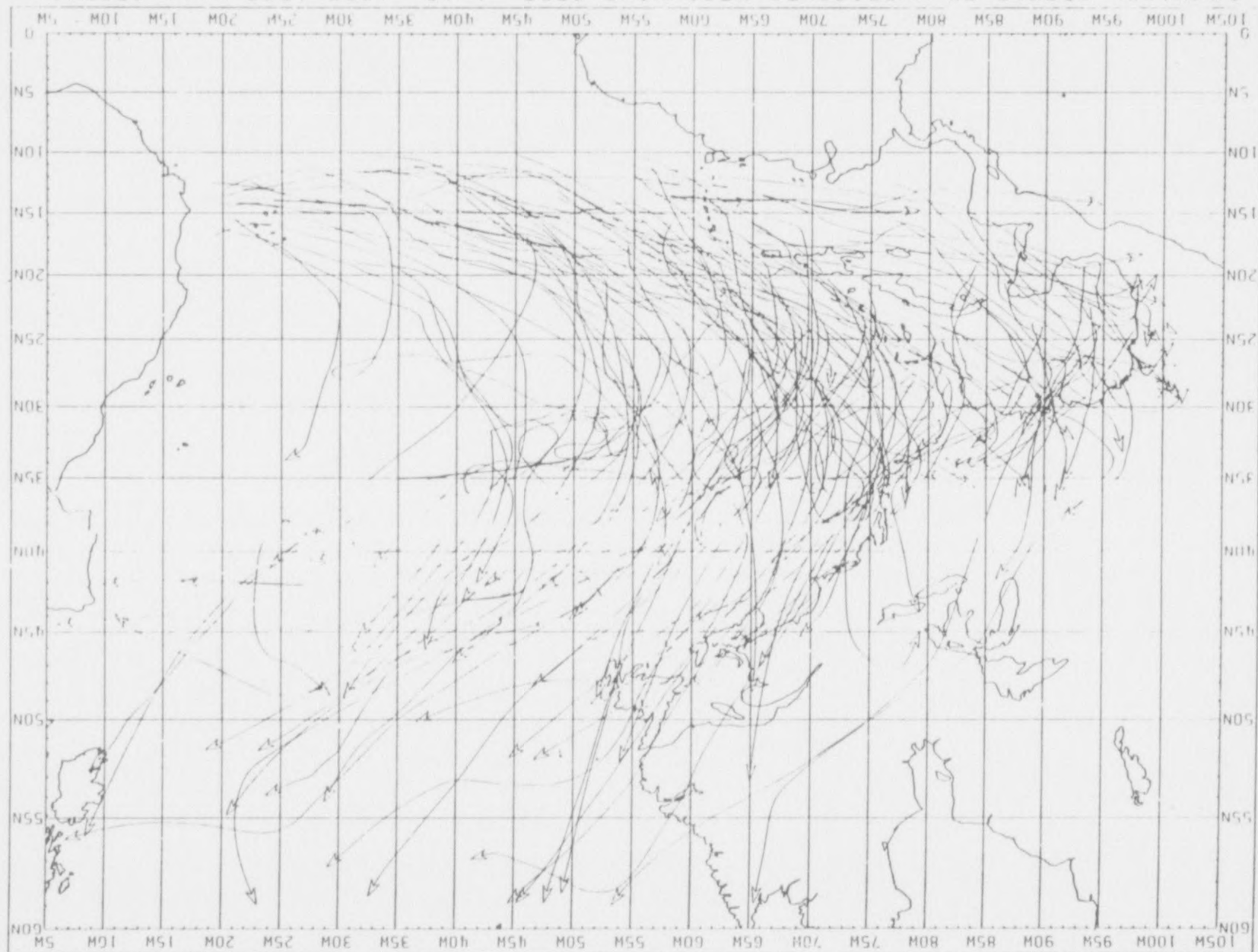






**1893 2000+ DEATHS**

TROPICAL STORMS OR HURRICANES BEGINNING SEPT. 1 10, 1886 1986 (111 STORMS)



02680

# EXHIBIT

SEP 6 1989

NO. 1

<u>Priority 1</u>	STATE BUDGET & CONTROL BOARD	\$920,000.00
Facilities--Columbia State Farmers Market		
<u>*Priority 2</u>		\$ 31,000.00
Consumer Services--Travel, Contractual Services & Equipment		
<u>*Priority 3</u>		\$ 66,000.00
Laboratory--Chemist, Technician, Temp Help & Supplies		
<u>Priority 4</u>		\$ 24,000.00
Marketing--Replace Two Vehicles (equipment)		
<u>Priority 5</u>		\$ 15,000.00
Marketing--Limited Resource Farmers Training (video)		
<u>Priority 6</u>		\$ 68,500.00
Consumer Services--LP Gas Prover, Computer for Metrology Lab, 20 Electronic Scales (Equipment) (Prover--\$12,000--Computer & Software--\$6,500-- Balances--\$50,000)		
<u>Priority 7</u>		\$250,000.00
Consumer Services--Equipment--Replace Heavy Weights Test Units (2)		
<u>Priority 8</u>		\$ 15,000.00
Administration--Agribusiness Development--Audio Visual aids and Brochures		
* Total Recurring	\$ 97,000.00	
Total Non-Recurring	1,292,500.00	
Total Requested	<u>\$1,389,500.00</u>	

02681



# EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

REMARKS BY

D. LESLIE TINDAL  
COMMISSIONER OF AGRICULTURE

before

THE SOUTH CAROLINA  
BUDGET AND CONTROL BOARD

SEPTEMBER 6, 1989

SOUTH CAROLINA DEPARTMENT OF AGRICULTURE  
FY 1990-1991

02682

GOVERNOR CAMPBELL AND MEMBERS OF THE BUDGET AND CONTROL BOARD, GOOD AFTERNOON, WE AT THE DEPARTMENT OF AGRICULTURE APPRECIATE THE OPPORTUNITY TO PARTICIPATE IN THIS IMPORTANT INITIAL PHASE OF FISCAL PLANNING FOR SOUTH CAROLINA. HAVING FOLLOWED THE STATE BUDGET PROCESS FOR MANY YEARS, I AM KEENLY AWARE OF THE CHALLENGES BEFORE YOU AND THE DECISIONS WHICH MUST BE MADE - DECISIONS WHICH, UNFORTUNATELY, SEEM TO GROW MORE DIFFICULT WITH EACH PASSING YEAR.

DURING MY TENURE AS COMMISSIONER OF AGRICULTURE, I AM SATISFIED AND PROUD THAT OUR DEPARTMENT HAS RESHAPED ITS STRUCTURE AND AGENDA IN A MANNER WHICH REFLECTS A COMMITMENT TOWARDS FISCAL RESPONSIBILITY. WITH YOUR HELP, WE HAVE PROPOSED, DEVELOPED AND IMPLEMENTED PROGRAMS WHICH PROVIDE LONG-TERM SERVICE AND ASSISTANCE WITHOUT RECURRING EXPENSES. WE HAVE INITIATED SELF-HELP PROGRAMS AND REALIZED PHYSICAL EXPANSION BY SEEKING ALTERNATIVE SOURCES OF FUNDING. AS A RESULT OF OUR

SUCCESS IN SECURING FEDERAL AND OTHER GRANTS, A NUMBER OF OUR FUNCTIONS AND NEEDS NO LONGER APPEAR AS ANNUAL FIXTURES IN THE APPROPRIATIONS BILL.

DURING THE PAST SIX YEARS, I HAVE INSISTED ON PRESENTING A BUDGET WHICH WOULD NOT ONLY WITHSTAND CLOSE PUBLIC SCRUTINY, BUT ONE WHICH WOULD BE WELL-RECEIVED BY INVESTORS IF THE DEPARTMENT OF AGRICULTURE WERE A PRIVATE CORPORATION.

I AM PLEASED TO REPORT THAT THE DEPARTMENT OF AGRICULTURE'S OVERALL BUDGET INCREASE DURING THE LAST SEVEN YEARS HAS BEEN HELD TO AN AVERAGE 3.99 PERCENT. MOST IMPORTANTLY, ONLY 10 FULL-TIME EMPLOYEES HAVE BEEN ADDED TO OUR WORK FORCE SINCE I TOOK OFFICE. WE CONTINUE, HOWEVER, TO DELIVER QUALITY SERVICE MANDATED STATUTORIALLY AND CONSTITUTIONALLY TO US.



IN ORDER FOR SOUTH CAROLINA AGRICULTURE TO CONTINUE AS BIG BUSINESS, THE DEPARTMENT OF AGRICULTURE MUST BE MANAGED LIKEWISE - AS A RESPONSIBLE CORPORATE LEADER REPRESENTING THE DIVERSE NEEDS OF EVERY PROVIDER AND CONSUMER IN OUR STATE.

AT THIS TIME, I WOULD LIKE TO ADDRESS OUR EIGHT PRIORITY ITEMS WHICH ARE UNDER CONSIDERATION.

PRIORITY ONE INVOLVES THE EXPANSION OF MARKETING FACILITIES AT THE COLUMBIA STATE FARMERS' MARKET IN THE AMOUNT OF \$920,000. AT THE PRESENT TIME, WE HAVE INSUFFICIENT STALLS AND DISPLAY AREAS FOR PROSPECTIVE SELLERS. AS A RESULT, WE HAVE HAD INCIDENTS WHEREBY FRESH PRODUCE ACTUALLY WASTED ON TRANSPORTS BECAUSE THERE WAS NO COVERED AREA AVAILABLE TO PROTECT FARM COMMODITIES. SOUTH CAROLINA CONSUMERS ARE ALSO DENIED A LARGER VARIETY OF PRODUCTS SIMPLY BECAUSE DEMAND FOR STATE GROWN FOODS HAS SURPASSED OUR PRESENT CAPACITY TO MARKET THEM. ACCORDINGLY,

\$460,000 IS NEEDED FOR DESIGN AND CONSTRUCTION COSTS. AN EQUAL AMOUNT, WHICH WAS APPROVED IN THIS YEAR'S BUDGET BUT WAS UNFUNDED, IS ALSO NEEDED FOR THIS PARTICULAR PHASE. IT IS IMPORTANT TO NOTE THAT THE COLUMBIA STATE FARMERS MARKET IS SELF-SUSTAINING, AND THAT IT ALSO HELPS GENERATE REVENUE FOR THE STATE THROUGH THE WHOLESALERS AND RETAILERS LOCATED THERE. THEREFORE, THIS NONRECURRING EXPENDITURE WILL SURELY BE RECOUPED BY THE STATE IN THE YEARS AHEAD.

PRIORITY TWO WOULD PROVIDE THE NECESSARY FUNDING TO MEET THE OPERATING NEEDS OF OUR CONSUMER SERVICES DIVISION. THIS NEED AROSE AS A RESULT OF THE GENERAL ASSEMBLY'S WISHES TO ADD TWO STAFF PEOPLE TO THIS DIVISION. ALTHOUGH SALARY FUNDING WAS ADDED, TRAVEL EXPENSES AND STAFF EQUIPMENT WERE NOT PROVIDED IN THE BUDGET. YOU WILL ALSO SEE THAT WE HAVE LOST \$6000 IN FEDERAL FUNDS WHICH WERE HERETOFORE USED FOR EGG INSPECTIONS. IN SUMMARY, OPERATING FUNDS ARE NECESSARY TO MAKE THESE NEW

POSITIONS FUNCTIONABLE. \$31,000.00 FOR TRAVEL, CONTRACTUAL SERVICES AND EQUIPMENT WILL KEEP OUR CONSUMER SERVICES DIVISION RESPONSIVE TO THE NEEDS OF SOUTH CAROLINIANS.

PRIORITY THREE ADDRESSES THE NEED FOR TECHNICAL PERSONNEL AT THE DEPARTMENT'S LABORATORY. WITH YOUR HELP THROUGH PREVIOUS FUNDING, WE HAVE UPDATED OUR LABORATORY FACILITIES AND NOW HAVE AN EFFICIENT AND WELL-EQUIPPED TESTING CENTER. NEW INSTRUMENTATION, HOWEVER, REQUIRES EXPERIENCED PROFESSIONALS WHO ARE TRAINED TO OPERATE TESTING DEVICES AND MONITOR RESULTS. WE ARE ASKING FOR FUNDING FOR A CHEMIST III, GRADE 35, \$34,000.00, AS WELL AS A TECHNICIAN, GRADE 16, \$16,000, AND A TEMPORARY PART-TIME ASSISTANT FUNDED AT \$11,000.00. MANY OF OUR ROUTINE SERVICES ARE NOW BEING DONE BY PROFESSIONAL CHEMISTS WHOSE TIME COULD BE BETTER USED PERFORMING TECHNICAL PROCEDURES. THE TECHNICIAN AND PART TIME EMPLOYEE WILL ALLOW CHEMISTS TO ALLOCATE THEIR ENTIRE WORK SCHEDULE TO THE MORE COMPLEX TASKS ASSOCIATED



WITH OUR LABORATORY SERVICES. YOU WILL ALSO NOTE A MODEST INCREASE OF \$5,000.00 IN LABORATORY SUPPLIES WHICH WILL BE NEEDED ONCE OUR STAFF CHANGES ARE IMPLEMENTED. AN APPROPRIATION OF \$66,000.00 FOR SALARIES AND SUPPLIES WILL ENABLE OUR LABORATORY DIVISION TO MORE ADEQUATELY MEET THE EVER-INCREASING DEMANDS OF FOOD SAFETY AND LABORATORY WORK.

PRIORITY FOUR SIMPLY IDENTIFIES TWO SERVICE VEHICLES WHICH ARE IN CLEAR NEED OF REPLACEMENT. AS OF LAST MONTH, THESE TWO CARS HAVE LOGGED CLOSE TO A QUARTER-MILLION MILES. GROWERS AND SELLERS THROUGHOUT THE STATE DEPEND ON OUR MARKETING SPECIALISTS FOR ON-SITE ASSISTANCE. THAT IS WHY RELIABLE TRANSPORTATION IS CRITICAL TO THE SUCCESS OF OUR MARKETING PROGRAMS. VEHICLE REPLACEMENT WOULD COST \$24,000.

PRIORITY FIVE IS AN INNOVATIVE PROGRAM WHICH WILL ENABLE US TO REACH OUT TO DEPRESSED AREAS OF SOUTH CAROLINA WITH A

STATE-OF-THE-ART TRAINING TOOL DESIGNED TO EDUCATE LIMITED RESOURCE FARMERS OF NEW MARKETING TECHNIQUES. THE \$15,000 FUNDING WOULD DEVELOP TRAINING VIDEOS WHICH HELP LIMITED RESOURCE FARMERS ENHANCE THEIR OPPORTUNITIES IN MARKETING THEIR COMMODITIES. IN THESE TIMES WHEN WE ARE LOSING MANY INDEPENDENT FARMING OPERATIONS EACH YEAR, THE DEPARTMENT OF AGRICULTURE HAS A CRITICAL RESPONSIBILITY TO HELP PROVIDE SOLUTIONS TO GROWERS STRAPPED BY ECONOMIC HARDSHIP. THE PROGRAM WILL LEVERAGE MANY TIMES ITS COST BY REGAINING POSITIONS IN THE MARKETPLACE FOR LIMITED RESOURCE FAMILY FARMERS.

PRIORITY SIX IS A REQUEST FOR REPLACING WORN AND ANTIQUATED EQUIPMENT USED TO CHECK WEIGHTS AND OTHER MEASURING DEVICES. SOUTH CAROLINA CONSUMERS DEPEND ON THIS SERVICE AND RELY ON OUR CONSUMER SERVICE SPECIALISTS TO MAINTAIN RELIABLE MEASURING STANDARDS. WE CANNOT ACCURATELY ENFORCE STATE AND FEDERAL REGULATIONS WITH THE EQUIPMENT NOW BEING USED. THE \$68,500 COST

WOULD PROVIDE A NEW LP GAS MEASURING DEVICE, COMPUTER AND SOFTWARE TO REPLACE WORN CALCULATORS AND NEW BALANCES FOR FIELD SPECIALISTS.

A RELATED ITEM IS ADDRESSED IN PRIORITY SEVEN WHICH CALLS FOR THE REPLACEMENT OF TWO LARGE WEIGHING UNITS WHICH ARE TRANSPORTED ACROSS THE STATE FOR CHECKING ACCURACY OF LARGE VEHICLE SCALES USED BY INDUSTRIES AND BUSINESSES. THE VEHICLES WHICH CARRY OUR PRESENT EQUIPMENT ARE OVER TEN YEARS OLD AND HAVE COMBINED MILEAGE OF 270,000 MILES. MAINTENANCE OF THE UNITS HAS BEEN CONSIDERABLE. THEY ARE BECOMING TOO COSTLY TO OPERATE. THIS IS A SERVICE WHICH WE CANNOT CONTINUE TO PROVIDE WITH THE PRESENT EQUIPMENT. THE TOTAL REPLACEMENT COST IS \$250,000.

PRIORITY EIGHT WILL ENABLE OUR AGRIBUSINESS DEVELOPMENT EFFORTS TO REACH POTENTIAL INVESTORS BY DEVELOPING AUDIO-VISUAL AIDS AND PRINTED MATERIAL OUTLINING SOUTH CAROLINA'S COMMITMENT



TO AGRIBUSINESS. RECRUITMENT PERSONNEL NEED SPECIALIZED TOOLS TO MARKET SOUTH CAROLINA'S POTENTIAL. IF WE ARE TO REMAIN COMPETITIVE IN THIS EFFORT, WE MUST HAVE THE MEANS TO DEVELOP INFORMATIONAL COMPONENTS WHICH TELL OUR STORY TO BUSINESS LEADERS. THE JOB OPPORTUNITIES AND RESIDUAL EFFECT ON OUR STATE ECONOMY ARE JUST A FEW OF THE BENEFITS WE STAND TO GAIN BY LURING NEW AGRIBUSINESS ENTERPRISES TO SOUTH CAROLINA. THE ONE TIME COST FOR THESE MARKETING TOOLS IS \$15,000.

GOVERNOR AND MEMBERS OF THE BOARD, AGAIN I THANK YOU FOR YOUR INTEREST IN OUR PROGRAMS. I APPRECIATE YOUR WILLINGNESS TO CONSIDER OUR FUNDING NEEDS. WE HAVE REACHED CRITICAL LEVELS IN SOME OF OUR PROGRAMS SIMPLY BECAUSE WE HAVE PRACTICED A POLICY OF NOT ASKING FOR FUNDING UNTIL IT IS ABSOLUTELY NECESSARY, AND THAT TIME HAS NOW COME. OUR FARMERS MARKET MUST BE FUNCTIONAL IF IT IS TO SERVE THE PUBLIC AS IT SHOULD. WE MUST HAVE TRANSPORTATION TO SEND OUR EQUIPMENT AND PERSONNEL TO EACH AND EVERY COUNTY.

OUR SERVICE PROGRAMS ARE USELESS IF WE HAVE NOT THE MEANS TO MAKE THEM AVAILABLE TO THE MOST RURAL AREAS OF OUR STATE.

OUR RECURRING REQUESTS AMOUNT TO \$97,000.00, AND INCLUDE TWO NEW POSITIONS, ALONG WITH MONIES TO MAINTAIN THE EQUIPMENT USED IN CONSUMER SERVICES AND LABORATORY WORK.

NONRECURRING REQUESTS TOTAL \$1,292,500.00. A VERY LARGE PORTION OF THAT, \$920,000.00 WILL GENERATE ITS OWN FUNDS FOR MAINTENANCE AND UPKEEP THROUGH THE COLUMBIA STATE FARMERS MARKET.

I AM COMFORTABLE IN PRESENTING THESE PRIORITIES TO YOU BECAUSE I BELIEVE THEM TO BE FISCALLY RESPONSIBLE AND IN THE BEST INTEREST OF THE SOUTH CAROLINIANS WE SERVE. I THEREFORE RESPECTFULLY REQUEST YOUR FAVORABLE APPROVAL OF OUR CRITICAL OPERATING NEEDS.

# EXHIBIT

SEP 6 1989 NO. 1

BUDGET STATEMENT  
OF THE  
S.C. LAND RESOURCES COMMISSION  
TO THE  
BUDGET & CONTROL BOARD

STATE BUDGET & CONTROL BOARD

FY1990-91 BUDGET REQUEST  
September 6, 1989

Governor Campbell, Honorable Members of the Budget & Control Board, State Senate, House of Representatives, and staff, we appreciate the opportunity to appear today to discuss our top budgetary priorities.

The S.C. Land Resources Commission is responsible for numerous functions relating to the conservation of natural resources, public safety, and public assistance in South Carolina. The Commission is responsible for land management and improvement through reduction of stormwater, sediment and erosion; mine permitting and regulation; dam safety permitting and regulation; soil survey and soil survey data interpretation; landscape architect registration; land resource planning and information including resource data collection and dissemination; providing cartographic information to the public; and providing coordination and assistance to the 46 conservation districts of the State and their commissioners.

These programs are important to the people of South Carolina and are essential to the economic growth and development of this State. Based on the latest statistics, we will continue to see a boom in population which will be accompanied by significant increases in construction and land use change.

The five (5) budget priorities which follow are geared toward planning and assisting in the environmentally sound development of our State's land and other natural resources and enforcing the environmental laws which are the responsibility of the Land Resources Commission.

A) Priority 1 - Attorney III.....\$ 45,844 (1)  
Personnel Costs.....\$39,344  
Other Expenses..... 6,500

One of the most critical needs of the agency is for an attorney to assist in matters relating to environmental law, regulation and law enforcement, administrative law, and other important legal matters.

The Attorney General's Office has assisted the Commission in legal matters for many years, however, the workload is now exceeding the capability of the Attorney General's Office to continue providing adequate assistance. The Chairman of our Board, Mr. William S. Simpson, and I met with the Attorney General to discuss this matter and it was the suggestion of the Attorney General that we pursue funding for an attorney for our agency with his full cooperation.

B) Priority 2 - Staff for Mining & Reclamation Division.....\$153,643 (4)  
4 Positions.....\$126,943  
Other Expenses..... 26,700



The mining industry in South Carolina is in a period of unprecedented growth and development because of the rapidly growing economy and burgeoning construction industry, in addition to the re-emergence of the gold mining industry. This tremendous growth could be a threat to the environment of the state if not regulated adequately.

Currently, there are 525 active mine sites in the state which are inspected by five (5) professional staff. During the past fiscal year, the agency processed 65 applications and issued 55 new permits with a net increase of 35 new mines.

At the beginning of FY89 the agency regulated 483 mines, which is 97 mines per inspector--a full load considering the complexity of many of these mine operations. It is projected that by the beginning of FY90-91 that the mine per inspector ratio will be more than 112.

I consider this to be a critical situation and additional staff are desperately needed.

C) Priority 3 - Stormwater Management and Water Quality

In 1984 the Legislature passed the Sediment, Erosion, & Stormwater Management Act which strengthened the Sediment and Erosion Control Act of 1971 and the Soil & Water Conservation Districts Act of 1937. These laws provide the authority and responsibility to the Land Resource Commission for assisting private land owners with problems relating to sediment, erosion, stormwater, flood control and nonpoint source pollution control. It also mandates assistance to other units of government with developing local ordinances to regulate these activities and assigns to the Commission the responsibility to regulate sediment, erosion, and stormwater on state owned property.

For the past year the Land Resources Commission has worked closely with the S.C. Department of Health and Environmental Control (DHEC) in developing the state's water quality plan for nonpoint source pollution pursuant to the Federal Water Quality Act of 1987. In August the Commission was designated by the U.S. Environmental Protection Agency (EPA), through a cooperative arrangement with DHEC, as the State's Water Quality Management agency for nonpoint source pollution from agriculture, mining, construction, and urban stormwater runoff. Based on these responsibilities, the Commission is requesting the following:

1. Conservation Engineers (Priority 3).....\$338,192 (8)

These eight (8) conservation engineers would be assigned to conservation districts to assist in the implementation of the 1985 Farm Bill, water quality programs of the Commission, conservation education, and other important programs.

2. Stormwater Control Engineers (Priority 6).....\$164,444 (4)

These four (4) engineers would be based in the four regions of the state to provide assistance to local units of government, conservation districts, and private land owners in problems relating to flood control, stormwater management, sediment control, and other related matters.

3. Flood Prevention Projects (Priority 5NR).....\$575,000

The agency is requesting funding for 13 local projects for relief of flooding in urban and populated rural areas.

D) Priority 4 - Soil Survey Program.....\$201,111 (2)  
State.....\$121,111 (1)  
Federal..... 80,000 (1)

This Commission is the state agency responsible for identification and mapping of soils. The soil survey is needed for any and all land use decisions to determine the compatibility of soils with land uses and development, including construction, agriculture, flood hazards, and delineating wetlands, in addition to many others.

Approximately one-third (1/3) of the land area of the state is in need of remapping to conform with modern survey standards. In addition to these extensive mapping needs, computerization is also necessary. The Commission has received written notification from the U.S. Department of Agriculture that we are eligible for cost-sharing for this mapping and computerization.

We are requesting funding for two (2) Soil Scientists, one from Federal and State, in addition to other funds totaling \$135,100; 85,000 would be provided by the State, and \$50,500 would be provided by the U.S.D.A. This is explained in detail in Priority 4 of the Budget Request. This is a critical need to the land users in the State of South Carolina.

E) Priority 1NR - Wetland Mapping & Digitizing.....\$300,000  
Wetland Mapping Specialist.....\$ 41,111 (1)

The Commission is working with the U.S. Fish and Wildlife Service making wetland maps and wetland information available to the public. We have almost completed computerization of the National Wetland Inventory for the 8 coastal counties. The proposed funding is for cost-sharing for the mapping by the Fish and Wildlife Service for the remaining 38 counties at a cost of \$125,000. Digitizing (computerizing) these inventory maps for the entire state by the Land Resources Commission will cost of \$175,000. The Wetland Specialist will be responsible for updating the NWI, maintaining the data base and disseminating information and maps.

The Fish and Wildlife Service mapping system has been endorsed by the Identification Committee and the Definition Committee of the Governor's Wetland Forum. This request is completely compatible with the recommendation of these two Committees.

I would like to quote from a statement which was passed unanimously by the Identification Committee at its most recent meeting:

"The committee recommends the use and completion of the NWI as the primary tool for identification and mapping of wetlands for the entire state.

The National Wetland Inventory is a high priority and should be completed for the entire state as soon as possible.

The committee further supports state appropriations sufficient for cost-sharing completion of the NWI with the U.S. Fish and Wildlife Service and digitizing (computerizing) the inventory for the state of South Carolina".

These are the major Budgetary Priorities of the South Carolina Land Resources Commission. We appreciate your time and your interest in our programs. I will be happy to answer any questions that you may have.



# **WATER FOR SOUTH CAROLINA'S FUTURE**

*Policy Issues and Options in the  
Development of a State Water Plan*

**EXECUTIVE SUMMARY**

02607

## *Foreword*

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South Carolina is fortunate to have abundant water resources. However, as the state continues to grow, its water resources almost inevitably will become limited relative to demand.

In September 1984, the South Carolina Water Resources Commission contracted with the Strom Thurmond Institute of Government and Public Affairs at Clemson University to undertake a study of water policy needs in South Carolina. The study was intended to prepare the way for another major step in the formulation of a state water plan for South Carolina.

The goal of developing a state water plan for South Carolina first was articulated in the Water Resources Planning and Coordination Act of 1967. Since enactment of that legislation, the South Carolina Water Resources Commission has taken a number of significant steps toward the formulation of such a plan for South Carolina. That work by the Commission and its staff has provided a solid foundation for the work reported here.

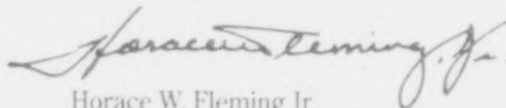
The study upon which this report is based was conceived broadly to include both careful review of existing knowledge about South Carolina water resources and new research to seek answers to important questions for which the existing knowledge provided no obvious responses. A multidisciplinary team of researchers and scholars at Clemson University and the University of South Carolina conducted the work. Among their disciplines are accounting, demography, economics, engineering, finance, geography, history, management science, political science, regional planning and sociology. The project also supported work by graduate students leading to two master's theses and three doctoral dissertations on issues of vital importance to this study.

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This report is not a proposed state water plan. But it does identify policy problems and issues that must be addressed in preparing a state water plan and offers recommendations for additional steps that now can be taken toward realization of such a plan. We are pleased to present this report and its recommendations to the Water Resources Commission and the people of South Carolina for consideration, discussion, debate and action.

Although it is impossible to name them all here, hundreds of South Carolinians from a variety of backgrounds and occupations—and representing diverse interests—contributed to this study. We at the Strom Thurmond Institute are grateful for their participation in this important undertaking.

We are also indebted to the members of the South Carolina Water Resources Commission and the Commission's staff for their assistance and support. We alone, however, bear responsibility for the resulting product.



Horace W. Fleming Jr.  
Director  
Strom Thurmond Institute  
of Government and Public Affairs

02699



# EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

## BACKGROUND

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02700

## *The Evolution of Water Policy in South Carolina*

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The first settlers in South Carolina found a well-watered land with rainfall averaging between 40 and 50 inches per year and many bold streams well dispersed across the landscape. Hailing from the British Isles, these settlers brought with them English common law, which provided the basis for water policy in South Carolina even after the Revolutionary War and after South Carolina joined the federal Union.

Under English common law, the water in watercourses and lakes was crown property, with ultimate authority over rights of use vested in the sovereign or his representative. In slightly amended form, the system still prevails in Australia and some other countries where the heritage of English law remains strong. Under English common law, owners of land adjacent to streams and lakes had no greater right of use than anyone else. The first to engage in any use generally acquired prescriptive rights, but disputes did arise that were taken to the Legislature for adjudication. As the state filled with people and the up-country became settled, the number of such disputes finding their way to the General Assembly burdened the legislative calendar. They also put elected members of the legislature in the difficult political position of having to resolve cases in which at least one party likely would be left angry and disappointed.

### **Riparianism**

Sometime early in the second quarter of the 19th century—there is some dispute among legal scholars and historians over which is the landmark case, *Barksdale v. Toomer* (1829) or *Omelvany v. Jagers* (1835)—the South Carolina courts, in adjudicating cases involving disputes over water rights, resorted to a new doctrine of water rights originated in America by Joseph Story and Chancellor Kent. That new doctrine was known as riparianism. It held that the rights to use water in a stream or lake were held solely by those who owned land adjacent to that stream or lake, and all riparian owners had a coequal right to the beneficial (and later, reasonable) use of the water, subject only to not interfering in the beneficial and reasonable use by other riparians.

The adoption by the courts of the riparian doctrine relieved the General Assembly. With an abundant water supply relative to demand and a simple rule of use requiring almost no administrative bureaucracy, there was little litigation over water rights in South Carolina for more than a century. Indeed, so few cases have been litigated that vast areas of riparian law in South Carolina remain relatively undefined. Water law with regard to groundwater rights has apparently remained as practiced in the common law of England, since no case involving groundwater rights can be found in South Carolina court records.



02761

Until the 1950s, there was little pressure to consider any new approaches to water policy in South Carolina. A conservative state governed by conservative politicians applied a conservative maxim to water policy: "If it's not broke, don't fix it." At least one large-scale interbasin transfer occurred in 1927 when the city of Charleston used a tunnel to tap water from the Edisto River. Other smaller interbasin transfers were countenanced in the 1930s and 1940s without any legal challenge from riparians who might have had legal standing to lodge such a challenge.

Apparently, there was more than enough water in South Carolina to accommodate all needs without incurring the expense of going to court to challenge a diversion that, in principle, violated the riparian doctrine. The only major activity involving water policy was the enactment of statutes in 1911 and 1920 to facilitate drainage of lands where standing water interfered with economic uses.

#### **Reform Sought**

The severe drought of the 1950s pushed issues of water policy to the top of the public agenda in South Carolina. A Soil Conservation Service report on water management in South Carolina proposed abandonment of the riparian doctrine in favor of the prior appropriations doctrine of water rights widely used in the western United States. That doctrine would have assigned rights to water use based on priority of claim, with rights registered like deeds and with the rights to use water separated from ownership in riparian land and (at least in theory) transferable independent of land. The Farm Bureau and the soil and water conservation districts became enthusiastic supporters of the proposed change, believing it would lock in a priority on water use for agriculture over industry and municipalities. Legislation to abandon riparianism in favor of the prior appropriations doctrine was introduced in the General Assembly.

The issue was debated with some heat. Not all farmers supported the proposed change in water policy; they objected to the notion that an administrative agency would have to grant approval for them to use water from a stream. Although the State Chamber of Commerce supported the proposed change, many industrialists objected, seeing it as antithetical to their interests. The Development Board also opposed the change. In 1954, the House of Representatives approved a bill embodying the proposed change, but the bill failed in the Senate. Subsequent attempts to pass bills in 1955 and 1956 failed to obtain a majority in either house. And as the drought subsided, the issue gradually faded.

02702



Having made a frontal assault on riparianism and failed, proponents of reform in South Carolina water policy retreated in the late 1950s. Industrialization and urbanization were slowly changing the conditions of water use in the state. *Ad hoc* compromises of the riparian doctrine continued to occur, with or without the General Assembly's sanction. A case in point is the approval granted by statute in 1955 for International Paper Company to divert 100 cubic feet per second from the Great Pee Dee River to its plant in Georgetown. In addition, prodded by federal concerns about water quality, South Carolina officials had begun as early as the late 1940s to enact legislation aimed at preventing or reducing water pollution.

### **A New Era**

The Water Resources Planning and Coordination Act of 1967 ushered in a new era in water policy in South Carolina. By the time that act was passed, a number of state agencies, in response to federal initiatives in water resources development and pollution control, had emerged as players in the formulation and implementation of water resources policy in South Carolina. Under the South Carolina Constitution, the Governor has little executive power over the various independent agencies. Hence, no formal mechanism existed for coordinating the water resources management activities of state government. The new law established the South Carolina Water Resources Commission while proclaiming that "it is in the interest of the public welfare that a coordinated ... state water resources policy be formulated." The act also directed the Water Resources Commission to prepare a state water plan.

### **Two Decades of State Water Policy**

In the 20 years since its creation, the Water Resources Commission has been responsible for enactment of a number of measures designed to bring water resources management in South Carolina in line with the needs of a state rapidly changing from an agricultural and rural to a manufacturing and urban society. These include:

- The Groundwater Use Act of 1969, which provides a mechanism for regulating groundwater use in certain parts of the state deemed capacity-use areas because investigations reveal that aquifers are being drawn down.
- The State Scenic Rivers Act of 1974, which provides a mechanism for protecting rivers of significant scenic and amenity values.
- The Water Use Reporting and Coordination Act of 1982, which requires all users of at least 100,000 gallons per day regularly to furnish information on their activities to the Water Resources Commission.
- The Drought Response Act of 1985, which directed the Water Resources Commission to develop a comprehensive drought plan and regulations for a drought management program.

02703



- The Interbasin Transfer Act of 1985, which allows the Water Resources Commission to regulate certain interbasin transfers of water.

Beginning with the "South Carolina Tidelands Report" in 1970 and the "Port Royal Sound Environmental Study" in 1972, studies which laid the groundwork for legislation establishing the South Carolina Coastal Council, the Water Resources Commission has also conducted a series of landmark studies of water resources in the state. Most recently, the Commission issued a comprehensive state water assessment and a rivers assessment.

A reading of the various water-related statutes enacted in South Carolina in the past 20 years reveals a consistent articulation of the goal of state water policy. That goal is maximum beneficial use with regard to the general well-being of all the people of the state. In putting forward this goal, the General Assembly has made clear its understanding that the general well-being requires the protection of environmental systems as well as economic growth and development. Yet the operational procedures for achieving that goal remain to be worked out within the framework of a comprehensive state water plan.

Why, after 20 years, is there still no state water plan in South Carolina? There are many possible explanations. Except during periods of drought, water resources management has not received high political priority in South Carolina. The absence of strong and consistent political pressure to establish a formal plan and the inherent difficulty of achieving consensus across several semi-independent state agencies are probably the two principal reasons why a plan of some sort has not been put forward. But there are also serious data deficiencies that would prevent formulation of a comprehensive plan, and there is no consensus as to what a suitable state water plan for South Carolina should look like.

The Water Resources Commission's ability to make steady progress toward a state water plan has also been compromised by assignment of increasingly heavy regulatory duties to its staff as a result of the various new statutes noted above. Because of these problems, the Commission has moved toward a plan by a series of careful, cautious steps wherein consensus is achieved on the next step before moving forward. Given the statutory authority of the Commission and the lack of strong public pressure for a state water plan, it is arguable that progress toward such a plan has been as rapid as might reasonably be expected.

02704

## SUMMARY OF MAJOR FINDINGS

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*The Situation and Outlook for  
Water Use in South Carolina*

EXHIBIT

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Barring climatological change that drastically reduces rainfall in South Carolina or some other unforeseeable disaster, the state has more than enough water in *most* years to see it well into the next century. However, localized imbalances between water supply and demand are beginning to develop. The city of Greenville, for instance, has found it necessary to tap water resources from the Savannah River basin.

The upper Savannah River is now fully utilized. Additional large withdrawals of water from the Savannah above the Strom Thurmond Dam can be accommodated only if some existing uses are curtailed. The problem is especially acute in times of drought when water needs in the upper Savannah basin can be accommodated only by drawing down the levels of reservoirs. Drawing down these reservoirs has serious adverse impacts on the market value of lakeshore property.

Most water supply problems in South Carolina for the near future are likely to arise because of drought. But South Carolina is drought prone. Major droughts occurred in the 1930s, in the 1950s, and in the 1980s. There appears to be a 30-year drought cycle that can be expected to bring a general drought to the state again in the second decade of the 21st century. With a growing demand for water, each renewal of the drought cycle will cause greater and greater economic damage and human hardship. The time to prepare for the next drought is now, before its onset.

Very little is known about the state's groundwater resources, regarding either reliable, sustainable yields or possible contamination. South Carolina depends upon common law to adjudicate conflicts over groundwater rights. While there appears to be sufficient surface water to meet the state's needs into the second decade of the 21st century, remedying the deficiencies in groundwater information will require 10 to 20 years of concerted, systematic scientific effort. Unless such effort begins almost immediately and is supported at stable levels of funding, the state will be unable to make intelligent use of its groundwater resources as demands on the surface water supply grow.

The fastest growing use of water in South Carolina is for irrigation of crops and golf courses. Irrigation occurs at a time of year when evaporation levels are high and rainfall is generally low, and irrigation is a consumptive use of water. For these reasons, increasing irrigation activities in the state could exacerbate water supply shortages in times of drought unless irrigators are encouraged to store water during the non-growing season to be drawn upon in lieu of withdrawals from streams or groundwater supplies.

02706

## *Organization and Operations of Water Supply Systems*

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Seventy-two percent of South Carolina's citizens are now served by the 1,615 community water supply systems under the regulatory authority of the South Carolina Department of Health and Environmental Control. The remaining 28 percent of the state's population depends upon private water supply systems, usually wells that each serve a single household. There are 342 water supply systems operated by agencies of government and non-profit water companies. The remaining privately owned community systems tend to be quite small, providing water to mobile-home parks and small or isolated residential subdivisions.

The highly decentralized organization of water supply systems in the state makes it impossible for many South Carolinians to benefit from economies-of-scale in water harvesting, treatment and distribution. The 22 largest municipal systems in the state provide water to about 40 percent of the state's population and about 50 percent of those served by community systems. The remaining 320 systems are concentrated in small towns and rural areas, serving populations that average less than 5,000 and having volumes that average less than 500,000 gallons per day. Unit costs in these smaller systems average about three times that of the larger systems.

More than half of the community water supply systems in South Carolina appear to be operating in the red. The problem is particularly acute among the smaller systems. If the smaller systems charge for water on the basis of the full true costs, the average household in South Carolina will face monthly water bills ranging from \$40 to \$100. These systems manage to hold down water bills and continue in operation only by using depreciation write-offs to fund operating expenses. Cash reserves are low, typically in restricted accounts required by their financing agencies. Accounting practices are poor and, as a result, there is evidence that local water boards are not fully aware of the precarious financial conditions of the systems for which they are responsible.

Forty-five percent of the existing water supply systems in the state will need to expand their capacities by the year 2005 to accommodate expected growth. The capital cost for this expansion (in 1988 dollars) is estimated at \$125 million, not including waterlines. Additional capital outlays will be needed for replacement of worn assets. Since most systems have nominal cash reserves, and since federal grants and loans for water supply systems are drying up, problems in obtaining financing for these capital expenditures are likely to occur. While water supply systems conceivably might borrow from the newly created State Resources Authority, many currently lack adequate financial records to establish creditworthiness.



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If small South Carolina water supply systems are cut off from grants and subsidized loans, they can meet future needs only by resorting to rate increases of 40 to 100 percent or more. Without federal subsidies for rural water systems, there are only three alternatives to these higher water bills in the small towns and rural areas of the state:

- Abandon the community water supply systems, leaving citizens to resort to private wells, cisterns and other sources.
- Subsidize small water systems from the state treasury at a level of \$8 to \$10 million dollars per year.
- Reorganize water supplies into regional systems large enough to realize economies-of-scale and be financially self-sufficient without having to resort to large rate increases.

### *Outlines for a State Water Plan*

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Generically, there are two kinds of state water plans. The first is *output* plans, or plans of the blueprint variety, which specify the quantities of water to be supplied to particular places and from particular sources, schedule the construction, and develop financing schemes. The second type is *process* plans, which define general goals and set in motion ongoing processes. These processes are expected to move events toward realization of the general goals, but they do not specify the rates of movement or expect that the goals will ever perfectly be achieved.

The two most comprehensive state water plans are those developed for California and Texas. Both were conceived as output plans and both are generally considered failures. The California plan has largely been implemented, but there have been serious unforeseen environmental side effects. The Texas plan failed because voters rejected key components.

State water plans in Arizona and Florida are process plans. Institutions set up to manage water resources in these states provide for flexible responses to changing conditions. While the plans are not without critics, the processes set in motion in Arizona and Florida are continuing and appear to be functioning largely as envisioned.



The South Carolina Water Resources Commission has been diverted from its planning and coordinating role, as envisioned in the Water Resources Planning and Coordinating Act of 1967, by short-term tasks assigned to it by various governors and by day-to-day demands of dealing with immediate water resources management problems. The composition of the Commission, which includes representatives from state agencies with interests in water resources management issues, makes Commission action difficult except when there is a broad consensus across state agencies. The small Commission staff is energetic and technically proficient, but there are insufficient staff resources to undertake long-term planning while also administering the regulatory duties assigned to the Commission by statute.

South Carolina lacks the hydrological data required to develop and implement an outcome plan. Even if steps are taken immediately to remedy these data problems, accumulating the required data will take 25 to 30 years.

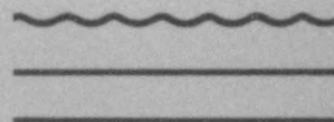
Data required for rational water resources policy and management are scattered across a number of state and local government agencies. The informational value of these data sets increases exponentially as they are brought into closer relationship with each other. Advances in computer technology, particularly in the area of computer cartography, make it possible to store, organize and retrieve these data sets in ways that allow their interrelationship in many permutations. Without use of this computer technology, there is apparently no practical way to proceed with a state water plan. Consequently, design, construction and implementation of a computerized geographic information system incorporating water resources data now collected and stored in several agencies is essential to further development of a state water plan.

Pending development of a comprehensive state water plan, numerous pressing problems associated with localized imbalances in water supply and demand, water shortages in times of drought, and the financing of water supply infrastructure must be addressed. These problems are interrelated and thus, unless care is exercised, movement toward the solution of one type of problem can exacerbate the other problems. The immediate task in development of a state water plan is formulation of basic water policy and management goals for South Carolina. These goals would then serve as a strategic reference point in crafting solutions to immediate problems while also providing a focus in formulation of a comprehensive state water plan.



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## GOALS



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## Goals for a State Water Plan

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The recurring theme in all water-related legislation enacted by the South Carolina General Assembly is *maximum beneficial use* of the state's water resources.

Maximum beneficial use implies that:

- No water is put to a low-value use if a higher-value use is going unfulfilled.
- All South Carolinians who need water for daily life will not be deprived of basic water needs by an inability to pay.
- The water supply system in South Carolina is administratively efficient.

A practical statement of the goal for a State Water Plan is:

- To assure that all segments of South Carolina society have the water they need for beneficial uses at the time they need it, in the place they need it, in the quantity and quality they need, and at the lowest possible cost.

Note that the reference is to *lowest possible cost*, not to *lowest possible price*. The distinction must not be overlooked. Price refers to what users are required to pay in order to acquire the right of use. Cost refers to what the people of the state must forgo in order to accommodate the various uses. The cost of providing water includes not just dollars and cents expenditures, but also environmental amenities that must be given up, social disruption that is induced, historical heritage that is abandoned, and any other opportunity or thing of value that must be sacrificed.



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## RECOMMENDATIONS

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## Concept for a State Water Plan

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The goal put forth for a state water plan could be achieved through free markets if all goods were tradable in markets, all markets were perfectly competitive, and the existing distribution of wealth were optimal. But:

- Many environmental amenities and such things as historical heritage are, by their very nature, not tradable in markets.
- No market is perfectly competitive.
- The existing distribution of wealth may not be optimal.

Even though market solutions to water resources management problems are not practical in all cases, a state water plan should make use of market mechanisms to the maximum extent feasible to:

- Take advantage of the information that markets produce about needs and about the relative values that individuals place on various needs.
- Minimize the administrative bureaucracy required to implement a state water plan.

Government actions are required to protect the public health and safety and to minimize adverse effects of market decisions on third parties.

Both the desirability of using market mechanisms and the inadequacies of existing data mean that if South Carolina is to have a state water plan in the foreseeable future, it must be conceived as a *process* plan rather than an *outcome* plan. The experiences of California and Texas with outcome plans also argue for South Carolina adopting a process-plan approach.

The geological diversity of the state and the different nature of water problems in various parts of the state argue for processes that give substantial latitude to local governments in decision-making about water resources management.

# 1

## RECOMMENDATION

The state of South Carolina should adopt the concept of a process plan as a framework within which a state water plan will be formulated and should seek confirmation of such a planning concept from the Governor and the General Assembly.

02/13

## 2 RECOMMENDATION

The South Carolina Water Resources Commission should be authorized to take the initiative in opening negotiations with other parties regarding management mechanisms for the Savannah and Catawba rivers. Goals should be established to reach a definitive agreement for the Savannah by 1992 and the Catawba by 1995.

Toward that end, the Commission immediately should undertake such background investigations as are needed to negotiate intelligently and with all pertinent technical and economic information at hand.

Most of the major rivers in South Carolina originate outside the state and flow into it. Because use of the waters of those streams in other states can have important consequences for water supply in South Carolina, uncertainties regarding water availability in South Carolina will exist until interstate agreements assign management of these streams. Resolving these uncertainties is a key step in the development of a state water plan.

The two rivers where the situation requires urgent action are the Savannah and the Catawba. Sufficient evidence indicates that the Savannah River above the Strom Thurmond Dam is already fully utilized. Data on withdrawals by North Carolina users from the Catawba are unavailable, but observed flows on the South Carolina stretches of the river indicate that discharges at upstream dams, several of which are in North Carolina, are affecting significantly the ability of South Carolina communities and industries to use water from the Catawba.

Several vehicles might be used to develop management programs for interstate streams. River-basin commissions, as authorized by the federal Water Resources Planning Act of 1965 or by interstate compacts, hold the most promise in developing management programs for the Savannah and Catawba rivers. The vehicle used should be selected through negotiations with all parties involved in use of the rivers.

Whatever the vehicle used, the interstate agreements should:

- Pertain to all water resources, surface and ground, within the specific basin because there is a hydrologic interrelationship between surface water and groundwater.
- Assure that South Carolina users will share water from the specific stream on the basis of the same allocation principles as users in other states.
- Provide for periodic re-evaluation of any federal role in the management and use of the stream.
- Provide a binding mechanism for arbitration of disputes and conflicts between the various parties.
- Assure that South Carolina has a continuing and institutionalized role in managing the affected stream.

02714



## *Preventing Drought Damages*

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The South Carolina Drought Response Act of 1985 provides mechanisms for dealing with drought emergencies once it is determined that a drought is occurring. Since future droughts are virtual certainties, every practical step should be taken before the onset of drought to reduce adverse consequences.

There are two non-exclusive strategies for reducing damages in anticipation of drought:

- Restrict additional large withdrawals of water from streams where insufficient water will be available to support such uses in times of low flow.
- Increase water storage during times of above-average rainfall so a supply can be drawn upon during times of drought.

It is foolish to countenance further large withdrawals of water from streams where the existing use will result in conflicts during times of low flow. Currently, the state has no regulatory authority to prevent such withdrawals.

Since Georgia already requires a permit for all large withdrawals of surface water, South Carolina may be handicapped in negotiating with Georgia on a management scheme for the Savannah River by its lack of regulatory authority over large withdrawals from the Savannah. Legislation to establish such authority, therefore, is important not only in preventing some drought-related damages, but also in reaching agreements for management of interstate streams.

The Groundwater Use Act of 1969 provides a model for legislation that would limit regulatory control over surface-water withdrawals to streams where use is at a level which triggers conflicts. Using such a model to formulate a surface-water-capacity-use program would minimize bureaucratic interference with the use of streams by private parties while safeguarding the public interest.

Impoundments to store water can be constructed either by private parties or by government. Private parties willing to incur the capital costs of constructing storage facilities from which releases will be made in the public interest during times of drought might reasonably be encouraged by tax incentives. Private parties owning storage capacity might lease or sell fractions of that storage capacity to other private parties or to governmental bodies.

## RECOMMENDATION

# 3

The South Carolina General Assembly should enact legislation that provides for designation of "capacity basins" where additional major withdrawals are likely to result in conflicts during times of low flow. The legislation should provide means for the Water Resources Commission to control additional large withdrawals in such basins.

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# EXHIBIT

SEP 6 1989

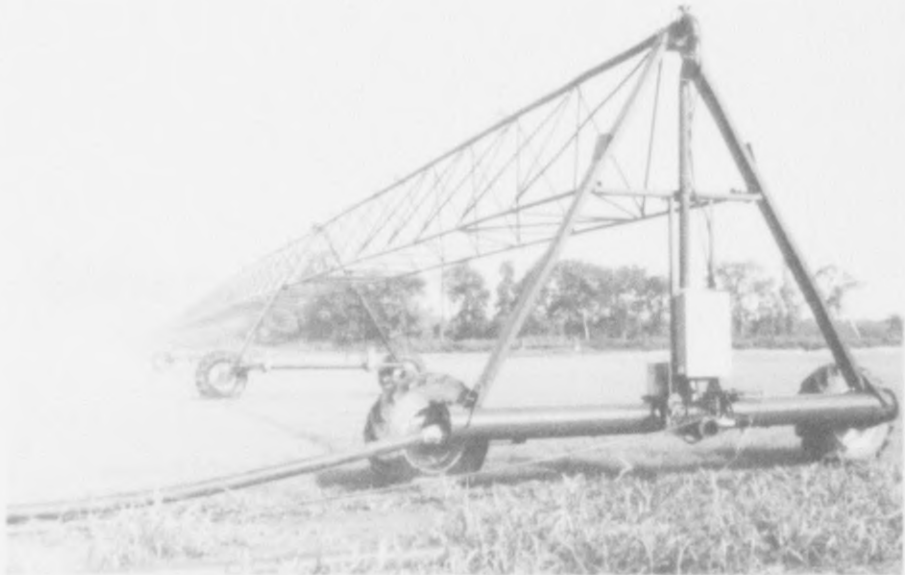
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STATE BUDGET & CONTROL BOARD

## 4

### RECOMMENDATION

The South Carolina General Assembly should enact legislation providing for tax incentives to private parties who undertake to construct water storage impoundments and enter into binding agreements to make reasonable releases of water for low-flow augmentation as directed during times of drought.



02716

## *Resolving Legal Issues Regarding Groundwater Rights*

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Even though court dockets reveal no urgency in resolving groundwater property rights, clarifying the legal rights to use groundwater is desirable in formulating a state water plan. In addition, resolving questions about groundwater property rights in South Carolina could help in reaching suitable agreements with North Carolina and Georgia about interbasin hydrologic systems.

There are two options for defining the groundwater-rights law in South Carolina:

- The Reasonable Use Doctrine, sometimes called the American Rule, modifies common law by subjecting the extraction of groundwater to a reasonable-use test, as determined by the courts.
- The Correlative Use Doctrine, sometimes called the California Rule, recognizes a coequal right of use of groundwater to all landowners engaged in reasonable use.

Most states have adopted one or the other of these options. South Carolina would advance water resources management by adopting either option. But because the Correlative Use Doctrine requires sharing of groundwater resources, it provides a better mechanism for allocating water in times of drought than does the Reasonable Use Doctrine.

# 5

## RECOMMENDATION

The South Carolina General Assembly should adopt the Correlative Use Doctrine as the basis for judicial adjudication of groundwater conflicts in South Carolina.

02717



# 6

## RECOMMENDATION

The South Carolina General Assembly should mandate development of county or multicounty regional water supply plans and assign responsibility for the development of such plans to designated elected local officials. After a certain date, all grants or loans from the state for water supply systems should be restricted to projects that implement approved regional water supply plans.

Regionalization of the water supply system in South Carolina is the only way to avoid either large increases in water rates or the need to grant substantial subsidies to water systems out of the state's general fund. Since there are few economies-of-scale in water retailing, regionalization can be accomplished through cooperative arrangements between existing systems to consolidate the harvesting, storage and treatment of water. It is not necessary that existing systems cease operations, merely that they specialize in water retailing.

Regionalization of the wholesale functions in water supply at the county level will reduce the required capital outlays for new treatment capacity over the next 15 years by about 40 percent, saving the people of South Carolina more than \$100 million.

Regionalization will also increase the options for responding to problems arising from drought. Presently, South Carolinians living in one town with an abundant water supply but working in an adjacent town may face work layoffs because of water shortages where they are employed. Interconnected water system grids will allow water to be moved around during times of drought and reduce problems associated with localized supply shortages.

Plans for regional systems should be developed for areas no smaller than counties. Since rivers and other major streams often define the boundaries between counties, it will make sense in many cases to develop regional plans that are multicounty in focus.

Regional water supply plans can be assembled by the Water Resources Commission and provide the core of a state water plan.

Planning for regional water supply networks requires detailed knowledge of local conditions and negotiations between existing water suppliers. The plans should be acceptable to the people in the area most directly affected. The overall state interest in the details of these plans is limited to protection of the environment and of other communities that might be adversely affected by upstream users. Hence, responsibility for the development of regional water supply plans should be vested in elected local officials.

02718

## *Improving Financial Management in Water Supply Systems*

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Numerous public-spirited citizens of South Carolina give their time and energy to serve on boards or commissions overseeing local water supply systems. To perform their responsibilities, these citizens must have information on the financial condition of the system for which they are responsible, and this information must be in a form understandable to them.

Research conducted as part of this study indicates that financial record-keeping for local water supply systems is often haphazard and inadequate to allow determination of the unit costs of supplying water. Thus, insufficient information is available to members of boards and commissions to establish water rates based on actual costs. The research also indicates that audits produced for local water supply systems are often difficult for lay persons to read and understand. Improvements in accounting practices are essential for placing local water systems on a sound financial basis.

Customers of water supply systems have a right to know the operating costs of their systems and to be able to compare costs of similar systems. The availability of such information in a form and at a place accessible to all citizens will improve accountability in the operation of local water supply systems.

To qualify for loans from the newly established State Resources Authority, local water systems must be able to establish creditworthiness. Since the State Resources Authority is funded by the sale of state revenue bonds, loans cannot be made to borrowers unable to demonstrate repayment ability. The existing financial records in many local systems are not sufficient to establish creditworthiness. Improvements in accounting practices and financial management are essential if the State Resources Authority is to function as envisioned.

Economic development efforts require quick and up-to-date knowledge about the location, condition and any surplus capacity in local water supply infrastructure. Such information is not easily accessible to investors or public officials working to increase economic development. A systematic, ongoing procedure for acquiring and accessing such information is vital to continued economic growth in South Carolina.

Achieving all these ends requires that state government provide a framework for standardizing accounting practices in local water supply systems and that procedures be established for maintaining an up-to-date statewide inventory of water supply infrastructure. Such a framework can provide information that will allow early identification of potential financial difficulties in local water supply systems and early remedial action to head off problems that threaten the public health and safety.

## RECOMMENDATION

# 7

The General Assembly should establish minimum accounting standards for local water supply systems and require annual financial reports from each system to the Comptroller General, as well as annual submission of maps and details on treatment plants, pipelines and other infrastructure to the South Carolina Department of Health and Environmental Control.

Responsibility for providing technical and managerial assistance to local water systems should be assigned to the Cooperative Extension Service of Clemson University.

02719

## *Improving Information for Water Resources Management and Policy*

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### RECOMMENDATION

# 8

The Water Resources Commission should move immediately to conduct a comprehensive review of data needs regarding both ground and surface waters. The review should identify needed data, determine technically suitable means for obtaining these data, develop realistic estimates of the costs of the data acquisition efforts, and set goals for when various types of data will be acquired.

The data base accumulated for water resources management and policy in South Carolina is not insignificant. Yet serious deficiencies in data remain. Before a state water plan can be formulated, three types of data deficiencies must be remedied:

- Data regarding groundwater resources.
- Data regarding water supply infrastructure.
- Data regarding the financial operations of local water supply systems.

Measures for remedying the latter two deficiencies were addressed in an earlier recommendation.

There is no quick or inexpensive way to solve the data problems regarding groundwater resources. The first step is to devise an ideal groundwater resources information system. Once the type of data required is determined, technical requirements for obtaining these data can be assessed, data-acquisition costs ascertained, and a workable plan formulated to acquire the data in a systematic and fiscally realistic way. While the effort almost certainly will require both a federal and state partnership and considerable interagency cooperation, the primary responsibility for developing a groundwater information plan rests with the Water Resources Commission.

There is also a need to review and reassess the adequacy of ongoing data collection efforts of federal and state agencies regarding surface water quality and quantity. The possible existence of long cycles in weather patterns means that serious errors in assessing water supply can result if data are not accumulated continuously over relatively long time periods. Responsibility for conducting such a review rests with the Water Resources Commission.

In obtaining hydrologic data, as in obtaining all other relevant data, the collection system must be devised in relation to how the data eventually will be used. The value of natural resources data for management and policy is compromised unless it can be assigned a geographic location. The more such data with geographic dimensions, the greater the information that can be extracted using computer technology.

The diffused storage of water resources data in South Carolina makes its acquisition difficult and expensive. Consequently, public officials and citizens are not making use of all relevant data available. Modern electronic data processing and computer cartography make possible greater cost effectiveness in data storage and retrieval. The basic expertise to design, construct and operate a geographic information system using computer technology is available in South Carolina, and some preliminary steps have been taken toward development of such a system. Development of an operational geographic information system incorporating water resources and related data is the next logical step in the formulation of a state water plan.

02720





## 9 RECOMMENDATION

The state should move expeditiously to develop an operational geographic information system, drawing upon the expert technical assistance of the Social and Behavioral Sciences Laboratory at the University of South Carolina.

To minimize interagency conflicts over the geographic information system, its operation should be assigned to an agency that provides services to all state agencies. The Division of Research and Statistical Services of the Budget and Control Board is best suited to assume operational responsibilities for a South Carolina geographic information system.

02721

## Improving Citizen Participation in Water Resources Planning

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### RECOMMENDATION

# 10

The Water Resources Commission should establish regional citizen advisory forums organized around the major river basins in South Carolina. The forums should consist of six to twelve persons representing a broad cross section of the population of the basins. The Commission should hold one of its monthly meetings in each region each year in conjunction with a meeting of the regional forum. Copies of the minutes of all Commission meetings and related materials should be distributed regularly to members of the regional forums.

Copies of all reports of the Water Resources Commission should be deposited in every library within the state, in the offices of the Clemson University Extension Service, and in the offices of the 10 regional councils of government. The Water Resources Commission should also investigate ways to disseminate information using the print and electronic media.

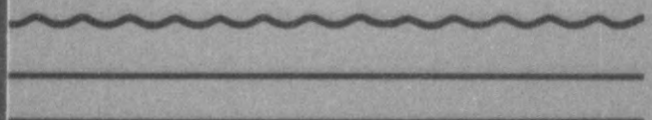
If the recommendation to use *process* planning rather than *outcome* planning as a basis for a state water plan is accepted, citizen input in the planning process on a continuous basis must be ensured. This is especially important since there are no members of the Water Resources Commission appointed to represent citizens at large.

How programs to increase citizen participation are organized can be very important. Those participating must be well informed about the constraints and trade-offs facing policymakers. Those who wish to inform themselves of the issues should have full opportunity to participate in the various processes.

Informed citizen participation requires that relevant information be readily accessible to all citizens within their communities at convenient locations and times and in a form understandable to lay persons. Such participation also requires that opportunities to voice opinions and judgments be conveniently available. Public libraries and the print and electronic media must be used to transmit relevant information regarding water resources management and policy issues to the public at large, and public meetings must be held regularly at several locations across the state.

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## THE NEXT STEP



02723



## *Acting on the Recommendations*

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While South Carolina's water policy problems are complex, they are amenable to solutions at relatively low cost if attacked at once. The longer the state waits to deal with these problems, the more complex they will become and the more difficult and costly the solutions. Water is not only essential to life, but it is vital to the state's economic growth. The time to establish orderly processes for rational management decisions in the use of the state's water resources is now.

The drought conditions of the 1980s and the public focus upon possible implications of the "greenhouse effect" create political conditions that may be favorable to serious consideration of the recommendations contained in this report. In addition, delays in acting on these recommendations will exacerbate many of the problems identified in water resources management in South Carolina. Given the time required to obtain some of the needed data, undue delay is likely to result in serious adverse consequences for the state when the next major drought occurs. Prompt action on the recommendations in this report is a matter of some urgency to the well-being and prosperity of the people of South Carolina.

Some needed actions can be undertaken by the Water Resources Commission, such as establishing a clearly understood goal and a conceptual framework for the state water plan. The Commission can also institute a review of information needs and establish citizen advisory forums. Other recommendations require action by the General Assembly. If the recommendations in this report are approved by the Commission, draft legislation for their implementation should be placed quickly in the hands of the Governor and legislators. In this way, public deliberation and debate essential to democratic government can begin without delay and during a time when the drought has reminded citizens of the fundamental importance of water in their daily lives.

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**STROM THURMOND INSTITUTE OF  
GOVERNMENT AND PUBLIC AFFAIRS**

**Water Policy Research Team**

**Research Coordinators**

James C. Hite, Alumni Professor of Agricultural Economics and Rural Sociology, Clemson University, and Senior Fellow, Strom Thurmond Institute.

James B. London, Associate Professor of Planning Studies, Clemson University.

**Research Analysts**

A. Bud Badr, Visiting Assistant Professor of Agricultural Engineering, Clemson University.

Larry L. Bauer, Professor of Agricultural Economics and Rural Sociology, Clemson University.

E. Lewis Bryan, Associate Professor of Accounting, Clemson University.

David J. Cowen, Professor of Geography and Director, Social and Behavioral Sciences Laboratory, University of South Carolina, and Fellow, Strom Thurmond Institute.

B. L. Dillman, Professor of Agricultural Economics and Rural Sociology, Clemson University.

J. Edwin Faris, Professor of Agricultural Economics and Rural Sociology, Clemson University.

Aynsley J. Kellow, Senior Lecturer in Policy Studies, Deakin University (Australia), and Visiting Scholar, Strom Thurmond Institute.

Randolph C. Martin, Professor of Economics and Director, Division of Research, College of Business Administration, University of South Carolina.

Edward L. McLean, Professor of Agricultural Economics and Rural Sociology, Clemson University.

Harry W. Miley Jr., former Associate Director, Division of Research, College of Business Administration, University of South Carolina.

James C. O. Nyankori, Associate Professor of Agricultural Economics and Rural Sociology, Clemson University.

William F. Steirer Jr., Associate Professor of History, Clemson University.

Sandra J. Teel, Associate Director, Division of Research, College of Business Administration, University of South Carolina.

C. Stassen Thompson, Professor of Agricultural Economics and Rural Sociology, Clemson University.

Gloria B. Tinubu, Assistant Professor of Economics, Spelman College.

Holley H. Ulbrich, Alumni Professor of Economics, Clemson University, and Senior Fellow, Strom Thurmond Institute.

Glenn E. Varenhorst, Professor of Planning Studies, Clemson University.

Richard K. White, Charles Carter Newman Professor of Natural Resources Engineering, Clemson University, and Senior Fellow, Strom Thurmond Institute.

C. Donald Wiggins, former Associate Professor of Finance, Clemson University.

Ronald P. Wilder, Professor of Economics, University of South Carolina.

Norman K. Womer, former Professor of Economics, Clemson University.

J. David Woodard, Assistant Professor of Political Science, Clemson University.

B. Perry Woodside III, former Associate Professor of Finance, Clemson University.

**Graduate Research Assistants**

Emanuel I. S. Ajuzie  
Randy Bullard  
Gordon Carriker  
Alma A. Evans  
Michael J. Fischer  
James J. Golden  
Joseph H. Heard  
Lanny A. Herron Jr.  
Mark E. Jefferson  
Lisa D. Keys  
Janardan B. Khatri-Chhetri  
Dwayne E. Porter  
W. Lynn Shirley  
Katharine M. Sparks  
Suresh Sureshwaran  
Claudio R. Volonté  
Patti R. Wilson  
James J. Wojcik  
W. Thomas Wallace  
Timothy White

**Undergraduate Assistants**

Patrick B. Harris III  
Matthew J. Regnier  
Douglas M. Robinson

**Support Staff**

Mary Nan Bridges  
Joyce A. Bridges  
Julie D. Craig  
Joyce F. Klein  
Georganne L. McMullen  
Martha G. Morris  
Ada Lou Steirer  
Cairen Withington  
Donna L. Zimmerman

**Project Officers for the S.C. Water  
Resources Commission**

Richard E. Rouse, Director, Research and Planning Division, South Carolina Water Resources Commission.

Linda Small, Executive Assistant for Public Affairs, South Carolina Water Resources Commission.

STATE OF NEW YORK

DEPARTMENT OF ENVIRONMENTAL CONSERVATION



EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD



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*Dr. Milton B. Wise, Vice President and Vice Provost, Division of Agriculture and Natural Resources, surveys landscape work at McGarity Mall, the area between major office, laboratory and classroom buildings of the Division.*

*A Message  
from  
Dr. Milton B. Wise*

**A**s a land grant university for the state of South Carolina, Clemson University has the privilege and responsibility of responding to the needs of the people of this state. Our mission and commitment includes teaching, research and extension in the areas of agriculture and natural resources. Through research we generate scientific information in response to the needs of citizens. This information, as well as that which may be gathered from additional sources, is organized into useful programs and is utilized by both resident instruction programs and in extension programs which reach practically every citizen in the state.

In this annual report, the first ever published exclusively for the Division of Agriculture and Natural Resources, we present samples of programs in teaching, research and extension which we feel will have an impact on the South Carolina economy and will help improve the quality of life of our people.

Our programs are intended to serve all South Carolinians, young and old from both rural and urban areas. These programs address the needs of many industries including agricultural production, agribusiness, food manufacturers, recreation and tourism, and forest products.

Over the years we've served traditional programs in agriculture and forestry and we will continue to strive in these

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mission areas. Additional program priorities we currently are addressing include developing human capital and rural communities, enhancing economic competitiveness, and designing integrated production systems.

Some of our specific thrusts include: the new area of biotechnology, through which we have successfully field tested genetically engineered organisms in cooperation with Monsanto Company; alternative farm enterprises of aquaculture, vegetable production and ornamental horticulture and turfgrass; the construction of a \$1 million acid rain research facility; and a \$1.1 million grant from the W.K. Kellogg Foundation of Battle Creek, Mich., for rural leadership development.

Changes in the pseudorabies program in South Carolina this year accelerated greatly with the legislature appropriating monies to do monitored herd testing and to institute the Pseudorabies ELISA test in the laboratory. The S.C. Meat and Poultry Inspection Program implemented a comprehensive self-certification program which will serve as the basis for evaluation and subsequent improvement of the state inspection program. The Department of Fertilizer and Pesticide Control, which is a program under the Division of Regulatory and Public Service, began regulating the Chemigation Law this year. This law mandates safeguards to prevent backflow of agricultural chemicals into surface or groundwater. The department's goal is to protect South Carolina's groundwater — a vital natural resource. We hope this document helps broaden your understanding of our division and the many services we provide through teaching, research and extension. Our mission is to continually expand and upgrade these programs to make South Carolina a healthier and more competitive environment for those who live here.

*Milton A. Wise*

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*Enclosures have been built for testing the effects of acid rain and ozone on the growth of pine trees.*

## *College of Forest and Recreation Resources*

### *Acid Rain And Ozone Damage Forests*

Evergreen trees in the upper elevations of the Southern Blue Ridge Mountains are dying, and many attribute it to a combination of acid rain and ground-level ozone pollution.

Through a multi-million dollar grant from the U.S. Department of Agriculture, Clemson researchers are participating with colleagues at Duke, Auburn, Florida and Texas A&M in the first comprehensive, controlled study of the effects of those pollutants on important Southern forest species. Under the leadership of Dr. Davis McGregor, Clemson researchers are studying the shortleaf pine species. They've set up 24 specially equipped environmental chambers on a 3.8-acre research site in the Clemson Experimental Forest. There, they subject groups of pine seedlings to varying levels and combinations of acid rain and ozone. Growth rates and damage, if any, are monitored.

Preliminary findings after six months of testing indicate that, of the two pollutants, ozone has done the most damage to the seedlings so far. The results of this five-year project could have a major impact beyond the state's forest products industry, potentially affecting any business that is subject to Environmental Protection Agency pollution standards.

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### *New Products Developed Through Wood Chemistry*

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Wood chemist David Hon is developing procedures for liquefying wood waste products to provide viable alternatives for petroleum-based plastics and other materials.

Hon's research could provide products that will replace plastics used in everything from floor coverings to automobile manufacturing. The results could lead to a decrease in U.S. dependence on foreign oil and a more responsible use of a renewable natural resource.

Unlike oil, wood is a renewable resource. The United States alone produces more than 400 million tons of wood waste a year — from sawdust to the millions of acres of jagged stumps left in the harvested timberlands. Wood chemistry research also benefits three of South Carolina's largest industries — textiles, chemicals and forest products — and is the focus of an international information exchange program involving Clemson and universities and institutes in China.

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### *Wild Turkey Habitat Studied*

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Wild turkeys — which usually inhabit undisturbed hardwood forests with scattered pines and openings — can flourish on intensively managed forests of pine plantations.

That's one of the preliminary findings in an ongoing research effort by the Department of Forestry to document the habitat utilization of the Eastern wild turkey in South Carolina.

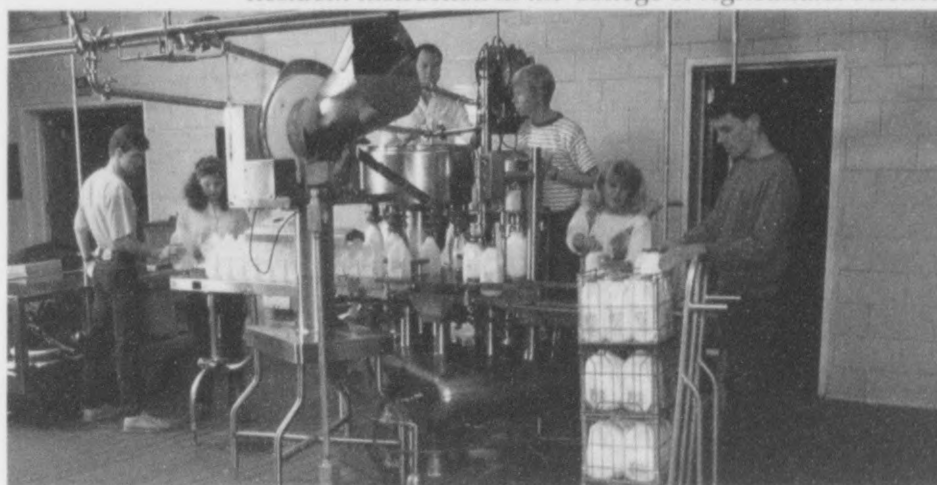
Working in rural Jasper County, Clemson scientists led by Dr. David Guynn track the movements of 50 turkeys equipped with radio transmitters. The researchers are finding that the turkeys seem to prefer recently cleared areas and stands older than 10 years with an open understory. Since the birds feed on early successional vegetation and insects along roadsides, well-managed road systems with limited access are becoming increasingly important to allow the turkeys to feed while remaining protected from poachers.

The project, conducted in cooperation with Westvaco Corp., the U.S. Forest Service Southern Forest Experiment Station, the National Wild Turkey Foundation and the S.C. Wildlife and Marine Resources Department, is scheduled for completion in 1991.

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#### Resident Instruction in the College of Agricultural Sciences



*Resident instruction includes practical laboratory and field experience. Dairy science students learn first-hand the processes involved in producing high-quality dairy products.*

### *Resident Instruction in the College of Agricultural Sciences*

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#### *Recruitment and Enrollment*

The most exciting trend for the College of Agricultural Sciences is the increase in freshman enrollment. The freshman class for fall of 1988 doubled in size compared to 1987. Continuing this upswing, it appears the class for the fall of 1989 will increase by another sizable margin. These figures are helping to produce positive feelings in every segment of the College.

To capitalize on this enrollment trend and the efforts of the College Recruitment Committee, a new temporary position entitled Director of Student Relations was created. This office's primary goal will be to recruit quality students for the College of Agricultural Sciences. This office will conduct programs to inform students of professional career opportunities in ag science. In the future, the office hopes to work on career placement for ag science graduates and other areas of student relations.

---

#### *Science and Technology Entrance Program*

The Science and Technology Entrance Program, known as S.T.E.P., has also proved to be a great success for the college. This program provides the opportunity for new freshman who barely miss entrance requirements to enter the college under the provisions of STEP. This program

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*Alumni Professor of Forestry Thomas E. Wooten and Denise Bonnett observe results of seed germination in a forestry research project.*

provides these students with the extra support and counseling they need to cultivate confidence and success in the university setting. The results of the first year of the program have been very pleasing. The group's actual GPR was significantly higher than their predicted GPR. The program's popularity is growing, as approximately 30 students will enter the limited-space program in the summer of 1989.

---

### *Improved Teaching*

A highlight in the area of faculty development occurred on January 10, 1989. The United States Air Force provided a day of training for improved instruction. The day-long seminar consisted of four segments that highlighted lesson planning, lesson development, instructional methods and media, and evaluation. The faculty that participated in the event found it very helpful. The college hopes to cover more of such workshops in the future.

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Researchers and technicians at Edisto Research and Education Center have conducted two field tests of genetically engineered microorganisms.

## *S.C. Agricultural Experiment Station Develops Knowledge*

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### *Biotechnology*

In November 1988 an interdisciplinary team of Clemson plant pathologists and microbiologists, in cooperation with Monsanto Company, began field testing a genetically engineered bacterium to measure its effectiveness against take-all, a major wheat-killing disease that causes millions of dollars in annual losses.

This planned six-month project follows Clemson's field test of another naturally occurring, common soil microbe that was genetically engineered with additional marker genes. The most current data from the study show the engineered microorganism moved just inches from where it had been applied to winter wheat roots and steadily decreased in population as expected. Clemson has taken a national lead in this area of applied biotechnology.

---

### *Biotech Research Focuses on Three Areas*

The S.C. Agricultural Experiment Station continues its commitment to biotechnology by focusing research in three areas. The first is the immuno-enhancement of the embryo. Scientists hope to improve the immune system of newborn farm animals to make them better equipped to fight disease. Another program is designed to strengthen the natural disease fighting elements in plants. A third research effort

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## S.C. Agricultural Experiment Station Develops Knowledge

will improve food safety through microbiology techniques. Scientists want to characterize the molecular factors that cause illness or allow microbes to invade foods and drinks. A new laboratory in Newman Hall will be a focal point for this biotechnology research. With state-of-the-art equipment, this lab will be used by researchers throughout the university who do recombinant DNA work.

---

## *Ornamental Horticulture*

Ornamental horticulture is one of the fastest growing industries in the state and typically generates \$278 million annually for South Carolina. This expanding sector of agriculture requires a database of knowledge from many disciplines including engineering, biological sciences and plant pathology. In order to meet that need, the Experiment Station, along with Clemson's horticulture department, sponsored a competitive grants program to expand and enhance research in ornamental horticulture.

Six new research projects were funded \$84,000 through the program. Scientists from horticulture, biological sciences, plant pathology, entomology, agronomy, agricultural engineering and microbiology are involved in the six projects.

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## *Toxic Fescue Research*

Three agronomists are making new efforts to solve the toxic fescue pasture problem that costs South Carolina livestock producers \$25 million in losses each year. Funded with a \$75,500 grant from the Cutting Edge monies, they hope to develop hardy fescue varieties and fescue pasture management systems to sustain pastures with low toxicity levels. Toxic fescue causes major reproductive problems for cattle and horses primarily in the Upstate region of the state.

02735





*Associate Professor of Horticulture John W. Kelly conducts research projects in floriculture, greenhouse production of commercial flower crops, which is one segment of the growing ornamental horticulture industry.*

---

### *Special Training*

Clemson scientists working in the growing field of biotechnology research are better prepared to compete for grant funds because of their participation in a 10-day workshop held on campus in December. Sponsored by the S.C. Agricultural Experiment Station and the College of Sciences, the workshop on recombinant DNA techniques provided essential training and information for the scientists to become more familiar with molecular biology.

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### *Gene Mapping*

A team of scientists from entomology and biological sciences are taking a biotechnological approach to map pesticide resistance genes in the tobacco budworm, a costly pest in cotton. Using recombinant DNA methods, the scientists are mapping these genes so that researchers can accurately monitor the level of resistance in field populations. With this knowledge, scientists can develop ways to administer pesticides that circumvent an insect's resistance to them.

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## S.C. Agricultural Experiment Station Develops Knowledge



*Researchers have found that red plastic mulch can increase the yield of tomato plants.*

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### *Low-input, Sustainable Agriculture*

Clemson and the University of Georgia share a \$150,000 research grant from the USDA to develop low-input, reduced-tillage systems for producing certain agronomic crops profitably in the southern United States. A vital part of the project is the Clemson Interseeder, a planter developed by Clemson agricultural engineers.

---

### *Plastic Mulches*

A team of horticulturists have found that different colors of plastic mulch have different effects on the growth of tomato plants. They have found that red plastic mulch produces the greatest yield, followed by black, white and silver. Mulch color affected both soil temperature and plant light environment. The plant's response to mulch color is dependent on location and season also.

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Gov. Carroll Campbell addresses the first group of graduates from Palmetto Leadership, a program designed to develop leadership in rural communities.

## *Extension Programs Serve Society*

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### *Palmetto Leadership*

A three-year, \$2.2 million rural community leadership program—Palmetto Leadership—is now well under way in South Carolina. Financed by the W.K. Kellogg Foundation and Clemson University, the program is using resources of the entire University to train both young and veteran leaders in identifying and solving problems facing their local communities. The training began in four pilot counties, Abbeville, Dillon, Kershaw and Saluda and is being expanded into other counties. Information gathered in this program will be used to create a model to be used in other states.

---

### *Agromedicine*

The W.K. Kellogg Foundation has provided \$787,000 to enhance the Clemson/Medical University of South Carolina Agromedicine program in South Carolina.

Faculty and students from Clemson, MUSC, Winthrop College and S.C. State College are collaborating in studies of health issues in rural communities. Highlights of the program in 1988 included:

- Development of protective clothing for pesticide applicators;
- Health and lifestyle screening of selected Orangeburg County citizens;

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## Extension Programs Serve Society

□ Profiling Beaufort County families with exceptional skills in coping with stress. Information gathered in the latter two programs will be used to develop educational materials to teach wellness in rural communities.

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### *Clemson Aquaculture Center*

Clemson University's new \$250,000 Aquaculture Demonstration Center at Estill has now been completed and has already produced a crop of food fish and fingerlings for South Carolina's growing catfish industry. The center, funded from State, county and local sources, has nine large ponds designed to demonstrate the latest and most efficient commercial catfish production techniques. The latest aquaculture mechanization equipment designed and developed at Clemson University is on display at the center.

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### *4-H Centers Expanding*

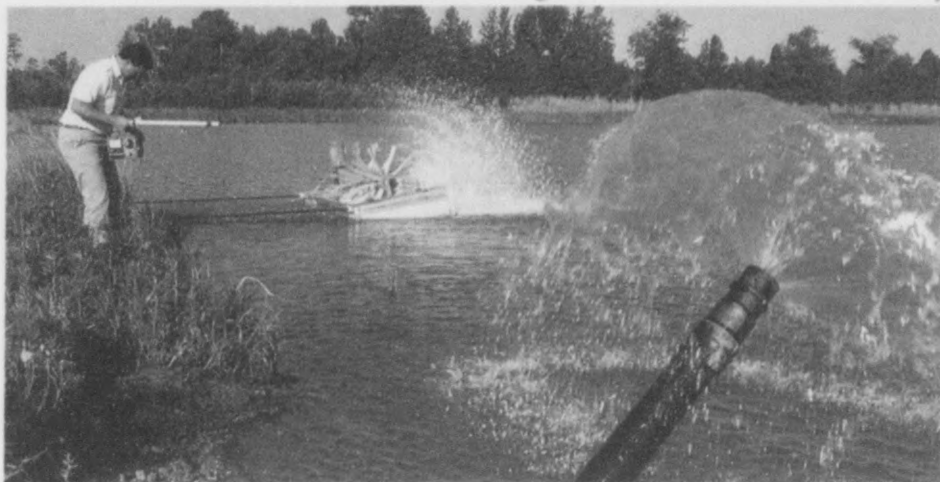
Gaining new knowledge, practicing decision-making, and learning to care for others are just some of the skills learned at the South Carolina 4-H Centers. The 1990's will see an expansion in the facilities and topics for study. Year-round opportunities are planned in two locations in addition to special marine camping on the coast and natural resource opportunities in the upstate.

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### *Hugs Not Drugs in 4-H*

Youth through 4-H in South Carolina help tell the drug prevention story to other youth and gain skills in coping with today's situation. Personal study, puppet shows, drama's, exhibits, public speaking, debating, and video messages are but some of the ways the story is communicated. One set of 4-H'ers said "The choice for me, drug free!"

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*Gib McKenzie, manager of Clemson University's new \$250,000 Aquaculture Demonstration Center at Estill, operates aeration equipment at the facility, which demonstrates the most efficient commercial production techniques.*

---

### CUMAP

Through CUMAP (the Clemson University Management Assistance Program), specially trained extension agents help farm families assess their financial status and identify business alternatives. Initially, the program targeted financially stressed farm families.

More recently, broad-based programs such as in-depth workshops have been emphasized. Approximately 5,000 people have been helped through CUMAP. Late in 1988 the CUMAP team helped about 200 farmers who had delinquent debt prepare financial plans required by the Farmers Home Administration if FHA was to continue financing for these farmers.

---

### Statewide Video Network

Present methods of information delivery require lots of time and travel by both Clemson Extension personnel and rural client groups extension serves. Clemson University is moving rapidly in the development and use of telecommunications technology to improve information delivery. The Clemson Extension Service has begun the first phase of a program to install closed-circuit TV reception sites at Clemson Extension offices and research and education

**C2740**

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## Extension Programs Serve Society

centers around the state. The extension video network will save time and travel dollars while speeding information delivery. Using S.C. ETV's existing transmission system, it's anticipated that 20-25 sites will be equipped with dish-shaped antennas which will be in operation by mid 1989. Installation at the rest of the 53 sites is scheduled in the next fiscal year.

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### *Parenting Renewal*

Because the period from birth to four years of age is the most critical age for optimal development of children, the Clemson Extension Service is now offering in 38 of the state's 46 counties a new parenting program that relies on a child's most important teachers—his parents. The curriculum uses video tapes, newsletters, radio spots and nine classes. Parents are learning about child development, use of firm rather than harsh discipline, improved diet and other health practices and the importance of affection.

Due to the popularity of the parenting renewal program and increased demand for it, volunteers are being trained to conduct it.

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### *S.C. Home Moisture Survey*

Information from a survey of homeowners in 16 S.C. counties is being studied at Clemson University to determine how many homes in the state have moisture damage and what's causing the damage.

This information was collected in early 1989 from a survey mailed to 6,000 homeowners. A Clemson Extension Service housing specialist/home economist and two housing researchers from a Scottish university are cooperating to learn how homeowners can prevent home moisture damage. Nationwide it is estimated that homeowners spend more each year for repair of moisture damage than they spend for termite control.



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*Agency Communications Network*

The State Employment Security Commission, the S.C. Department of Education, the Department of Highways and Public Transportation and DHEC are among state agencies requesting statewide computer data networking through Clemson University.

Such computer networks, to be established through CUFAN (the Clemson University Forestry and Agriculture Network) could improve interagency communications and speed data transmission to any point in the state for about 30 state agencies.

The networking is possible under an agreement signed by Clemson University and the State Budget and Control Board.

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## *Division Of Regulatory and Public Service Programs*

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### **Division Of Regulatory And Public Service Programs**



*Robert E. Kelly is an entomologist with the Department of Fertilizer and Pesticide Control, which protects our environment and food supply by regulating the sale and use of agricultural chemicals.*

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### **Department of Fertilizer and Pesticide Control**

The pesticide section regulates all sales and use of pesticides in South Carolina. The benefits of the regulation are a safer and more effective use of pesticides.

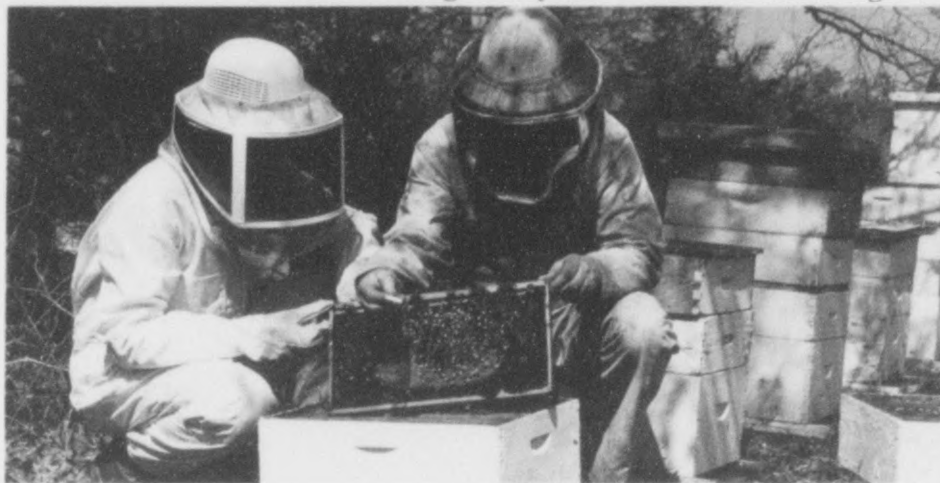
New areas regulated in 1988 include the Chemigation Law, which mandates safeguards to prevent backflow of agricultural chemicals into surface or groundwater. Coordination of groundwater protection from fertilizer and pesticide use is our responsibility. We are working with other state and federal agencies to protect this natural resource.

Endangered species and farm worker safety programs have been through review and planning stages in 1988. Fish kill prevention in coastal South Carolina continues to be a major focus regarding pesticide use. This has been a joint project of the Clemson University Cooperative Extension Service and Department of Fertilizer and Pesticide Control. A grant from the Environmental Protection Agency was awarded to help the Extension Service build a facility at the Sandhill Research and Education Center to train termite pest control technicians in the basics of treating homes and other structures.

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## Division Of Regulatory And Public Service Programs



*South Carolina beekeepers do not face the threat of Varroa mites infecting their hives. Inspectors with the Department of Plant Industry detected and supervised the removal of infected hives last year.*

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### *Department of Plant Industry*

The Varroa mite, a new pest of the honey bee, was detected and confirmed in four counties during 1988 and January 1989. The detections were associated with migratory beekeepers who were overwintering bees in South Carolina. All hives were treated and removed as soon as possible. After a state-wide survey, South Carolina was declared a non-infested state.

The 1988 boll weevil eradication program was completed without any major problems. Grower assessments totaling almost 1.2 million dollars were collected for program operations and forwarded to the grower foundation.

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## *Livestock - Poultry Health Service*

### **Livestock - Poultry Health Service**



*All livestock going through auction markets in South Carolina are inspected for contagious and infectious diseases.*

During 1988-1989, changes in the pseudorabies program in South Carolina accelerated considerably with the legislature appropriating monies to do monitored herd testing and to institute the Pseudorabies ELISA test in the laboratory.

The S.C. Meat and Poultry Inspection Program implemented a comprehensive self-certification program which will serve as the basis for evaluation and subsequent improvement of the state inspection program. The South Carolina inspection program continues to meet standards that classify it as "at least equal to" the federal meat and poultry inspection program.

Presently, major livestock health programs are aimed at the eradication of pullorum in poultry, brucellosis and tuberculosis in cattle and pseudorabies in swine. All livestock going through auction markets are inspected for evidence of contagious and infectious diseases. This division furnishes a veterinarian for each public auction of livestock to ensure that all animals meet intrastate and interstate requirements for sale and movement.

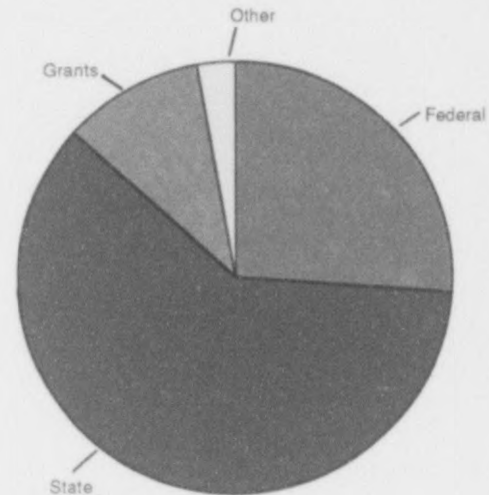
**02745**

## DIVISION OF AGRICULTURE & NATURAL RESOURCES

STATE FISCAL YEAR '87-88

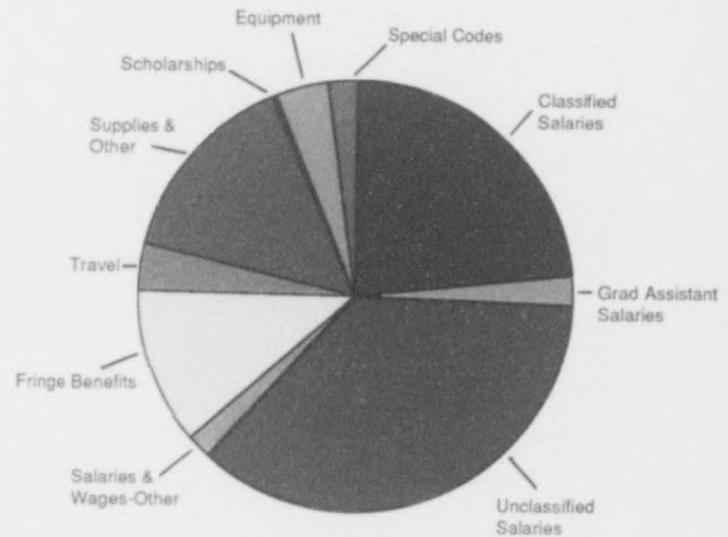
### SOURCE OF FUNDING:

FEDERAL	\$15,743,845
STATE	\$36,402,508
GRANTS	\$6,390,275
OTHER	\$1,657,086
<b>TOTAL</b>	<b>\$60,193,714</b>



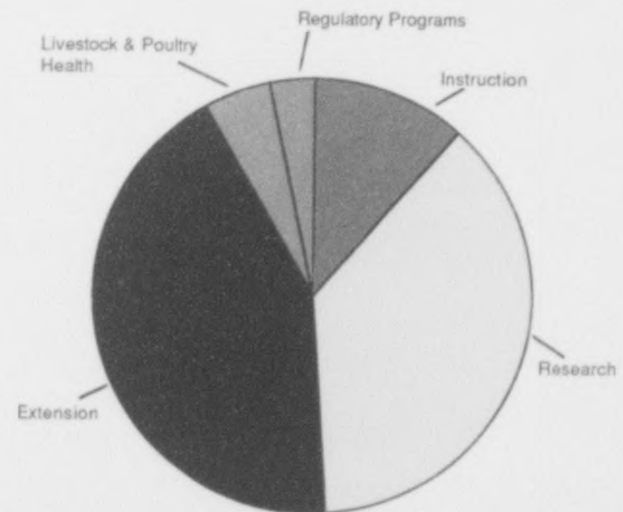
### EXPENDITURES:

CLASSIFIED SALARIES	\$14,101,724
GRAD ASSISTANT SALARIES	\$1,299,274
UNCLASSIFIED SALARIES	\$21,662,138
SALARIES & WAGES-OTHER	\$1,104,927
FRINGE BENEFITS	\$7,021,251
TRAVEL	\$2,152,637
SUPPLIES & OTHER	\$9,067,091
SCHOLARSHIPS	\$61,014
EQUIPMENT	\$2,397,793
SPECIAL CODES	\$1,325,865
<b>TOTAL</b>	<b>\$60,193,714</b>



### EXPENDITURES BY FUNCTION:

INSTRUCTION	\$6,816,270
RESEARCH	\$22,598,885
EXTENSION	\$25,759,326
LIVESTOCK & POULTRY HEALTH	\$3,004,156
REGULATORY PROGRAMS	\$2,015,077
<b>TOTAL</b>	<b>\$60,193,714</b>



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## DIVISION OF AGRICULTURE AND NATURAL RESOURCES

### Administration

Milton B. Wise  
Vice President and Vice Provost  
Division of Agriculture and Natural Resources  
101 Barre Hall  
656-3015

Paul K. Gable Jr.  
Associate Vice President - Fiscal Affairs  
107 Barre Hall  
656-5811

Associate Vice President - Development (Vacant)

James C. Miller Jr.  
Assistant Dean - Personnel  
107 Barre Hall  
656-3388

Director of International Programs (Vacant)

### COLLEGE OF FOREST AND RECREATION RESOURCES

Benton H. Box  
Dean, College of Forest and Recreation Resources  
130 Lehotsky Hall  
656-3215

#### Academic Departments

**Aquaculture, Fisheries and Wildlife**  
D. Lamar Robinette, Head  
308 Long Hall  
656-3117

**Forestry**  
Michael A. Taras, Head  
261 Lehotsky Hall  
656-3302

**Parks, Recreation and Tourism Management**  
Lawrence R. Allen, Head  
263 Lehotsky Hall  
656-3400

### COLLEGE OF AGRICULTURAL SCIENCES

#### RESIDENT INSTRUCTION

James H. Daniels  
Acting Dean and Director of Resident Instruction  
102 Barre Hall  
656-3013

#### Academic Departments

**Agricultural Economics and Rural Sociology**  
Garnett L. Bradford, Head  
220 Barre Hall  
656-3225

**Agricultural Education**  
Glen C. Shinn, Head  
112 Poole Agricultural Center  
656-3300

**Agricultural Engineering**  
Richard O. Hegg, Head  
114 McAdams Hall  
656-3250

**Agronomy and Soils**  
Ralph E. Franklin, Head  
275 Poole Agricultural Center  
656-3102

**Animal Science**  
Charles W. Foley, Head  
154 Poole Agricultural Center  
656-3426

#### Dairy Science

D. Dixon Lee Jr., Head  
114 Poole Agricultural Center  
656-3230

#### Entomology

Sidney B. Hays, Head  
114 Long Hall  
656-3111

#### Experimental Statistics

Wilbert P. Byrd, Head  
F-148 Poole Agricultural Center  
656-3028

#### Food Science

Woodie P. Williams Jr., Head  
223 Poole Agricultural Center  
656-3397

#### Horticulture

R. Daniel Lineberger, Head  
172 Poole Agricultural Center  
656-3403

#### Plant Pathology and Physiology

O. Joseph Dickerson, Head  
118 Long Hall  
656-3450

#### Poultry Science

Bruce Glick, Head  
129 Poole Agricultural Center  
656-3162

### S.C. AGRICULTURAL EXPERIMENT STATION

James R. Fischer  
Dean of Agricultural Research and  
Director, S.C. Agricultural Experiment Station  
104 Barre Hall  
656-3140

Donald C. Coston, Associate Director  
104 Barre Hall  
656-3140

Jack W. Davis, Acting Head  
Agricultural Support  
101 Agriculture Servicer, Cherry Road  
656-3477

#### RESEARCH AND EDUCATION CENTERS

**Coastal Research and Education Center**  
B. Merle Shepard, Resident Director  
2865 Savannah Highway  
Charleston, SC 29407  
766-3761

**Edisto Research and Education Center**  
James R. Hill Jr., Resident Director  
P.O. Box 247  
Blackville, SC 29817  
284-3343

**Pee Dee Research and Education Center**  
Benjamin U. Kittrell, Resident Director  
Route 1, Box 531  
Florence, SC 29501-9603  
662-3526

**Sandhill Research and Education Center**  
Jimmy K. Golden, Resident Director  
P.O. Box 280  
Elgin, SC 29045  
788-5700

### COOPERATIVE EXTENSION SERVICE

Byron K. Webb  
Dean and Director, Cooperative Extension Service  
103 Barre Hall  
656-3382

#### 4-H and Youth Development

Glen H. Krohn, Assistant Director  
108 Barre Hall  
656-2414

#### Agriculture and Natural Resources Programs

Elwyn E. Deal, Assistant Director  
108 Barre Hall  
656-3384

#### Field Operations

Dan D. Ezell, Assistant Director  
103 Barre Hall  
656-3381

#### Home Economics Programs

Sara A. Bagby, Assistant Director  
108 Barre Hall  
656-3306

#### Staff and Computer Resource Development

William A. Shumel, State Leader  
210 Barre Hall  
656-3383

### REGULATORY AND PUBLIC SERVICE PROGRAMS

Calvin L. Schoulties  
Director, Regulatory and Public Service Programs  
214 Barre Hall  
656-3005

#### Agricultural Chemical Services

Alan K. Torrence, Head  
253 Poole Agricultural Center  
656-3172

#### Fertilizer and Pesticide Control

Von H. McCaskill, Head  
256A Poole Agricultural Center  
656-3171

#### Plant Industry

Herman B. Jackson Jr., Head  
112 Agriculture Servicer, Cherry Road  
656-3006

#### Seed Certification

John D. Black Jr., Head  
104 Agriculture Servicer, Cherry Road  
656-3004

### LIVESTOCK-POULTRY HEALTH

Jones W. Bryan, Director  
Livestock-Poultry Health  
P.O. Box 218  
Elgin, SC 29045  
788-2260

#### Animal Health

John B. Thomas, Associate Director  
P.O. Box 218  
Elgin, SC 29045  
788-2260

#### Diagnostic Laboratory

William T. Deneux, Acting Associate Director  
P.O. Box 218  
Elgin, SC 29045  
788-2260

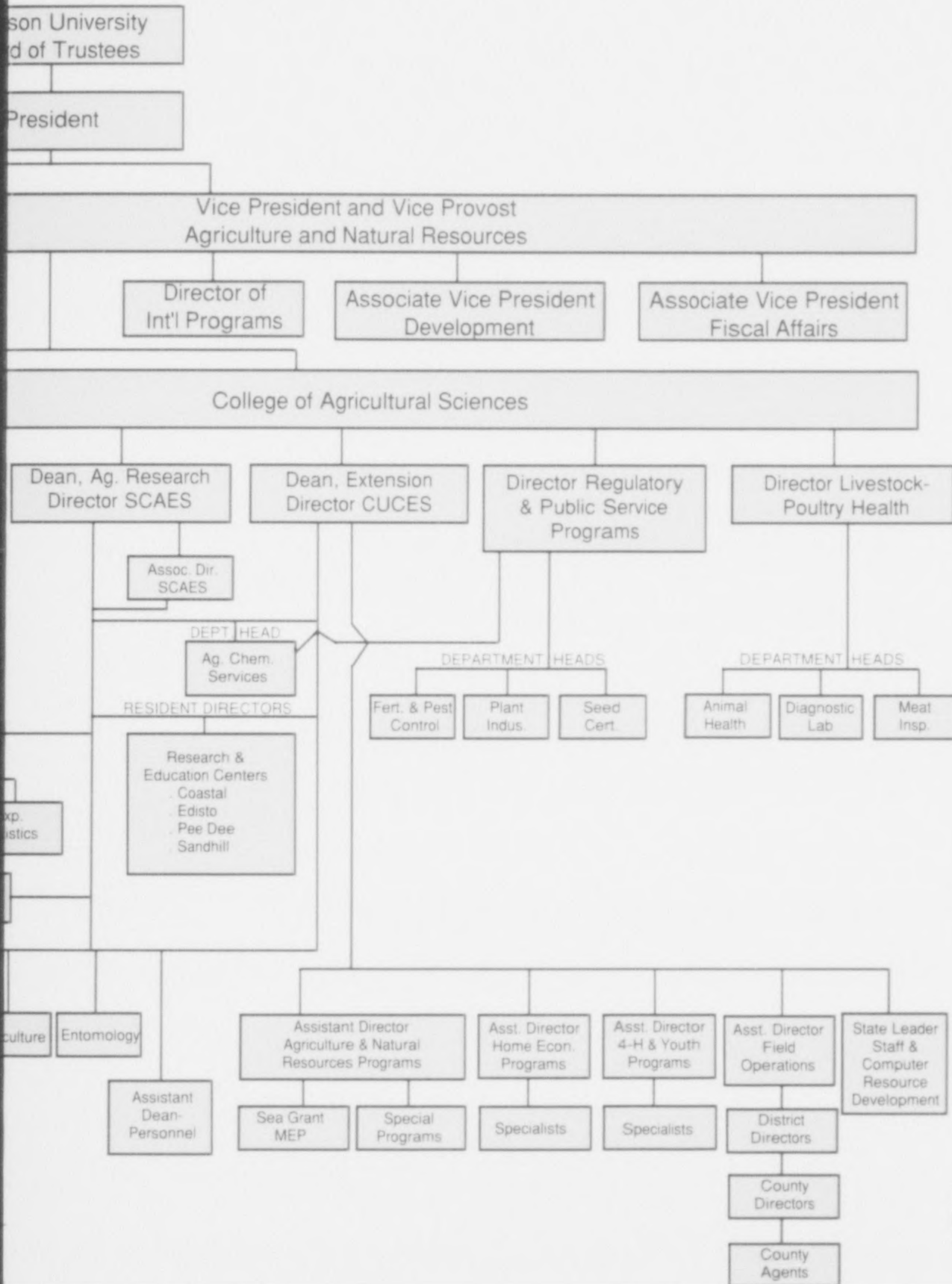
#### Meat Inspection

Charles C. King, Associate Director  
P.O. Box 218  
Elgin, SC 29045  
788-2260

02747

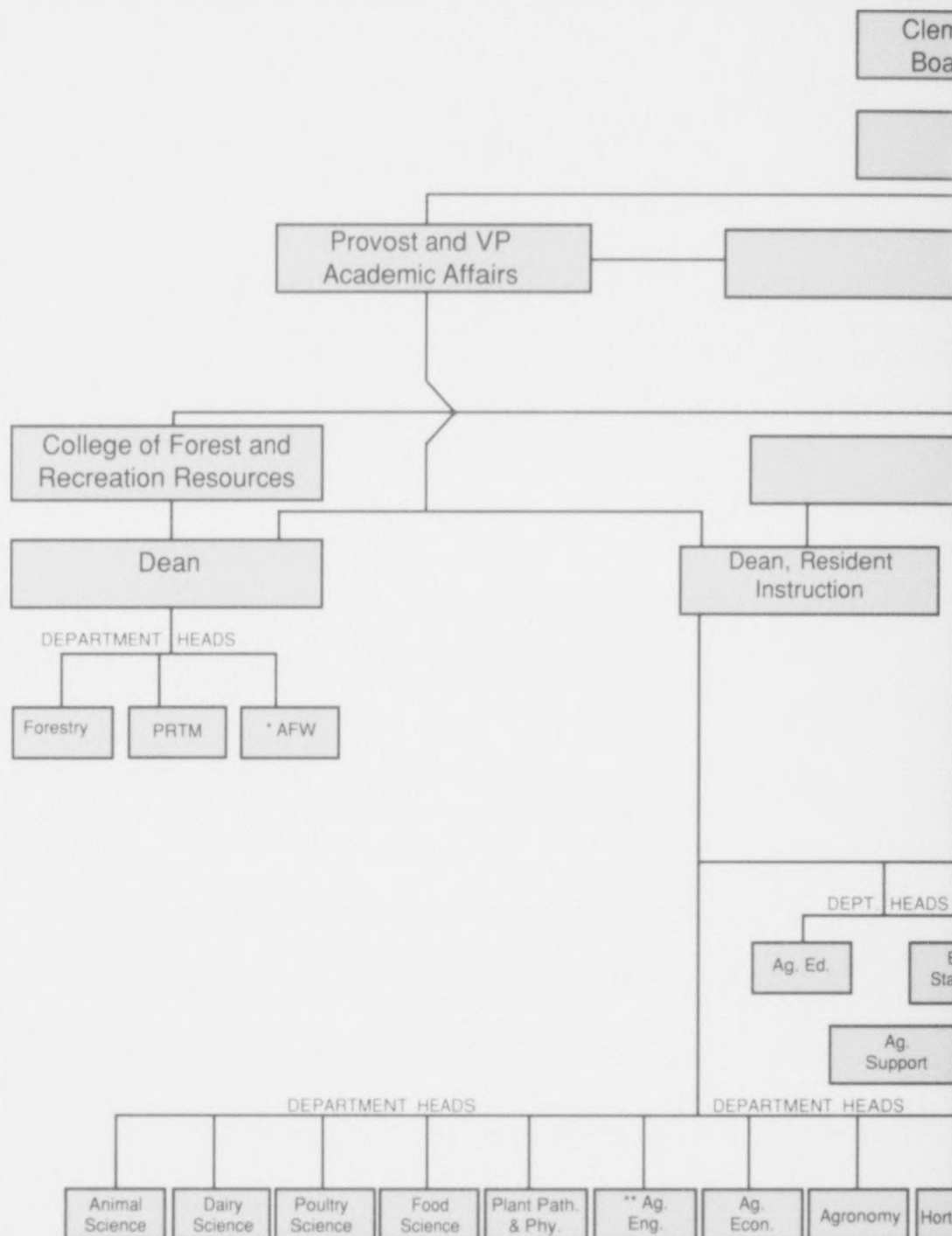


ON UNIVERSITY  
 Agriculture and Natural Resources  
 Organizational Chart



02743

CLEMSON  
Division of Agriculture  
Organizational Chart



\* Jointly administered with College of Agricultural Sciences

\*\* Jointly administered with College of Engineering

-- Some Research faculty in the College of Sciences are supported by the SCAES.

-- Extension and Research at South Carolina State College are coordinated with CUES and SCAES.

-- Research in Home Economics at Winthrop College is supported by the SCAES.

NOTE: Department of Agricultural Communications is administered by University Relations with responsibility for news and publications in Research, Extension and Regulatory Programs.

02749



CLEMSON  
UNIVERSITY



# PSA



▲  
CLEMSON  
UNIVERSITY  
PUBLIC  
SERVICES  
ACTIVITIES  
1990-1991  
BUDGET  
REQUEST



C2750

Clemson University's Public Service Activities have traditionally provided services to the citizens of South Carolina that enhance economic development, improve the quality of life and explore opportunities for future growth. Every citizen of the state is affected through our programs and services.

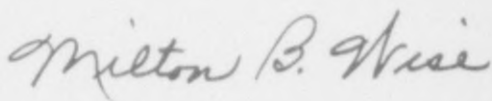
Last year, we introduced some exciting new programs to advance rural South Carolina and make the state's agricultural industries more competitive. Those programs are having success, and I am proud and appreciative of that progress.

This year, we are proposing additional new initiatives, all targeted toward enhancement of the state's economy and environment. Our three priorities are:

- 1) Enhancing Agriculture's and Forestry's Future,
- 2) Developing Rural South Carolina, and
- 3) Increasing Program Effectiveness.

We will develop new ways to balance cost-effective production with environmental quality, including the water supply and food safety. We want to devote more resources to genetic and cultural solutions to the problem of declining forests. We will expand our work in an array of programs from rural leadership and education to international trade and finance. We will increase effectiveness of our programs and are designing new tools to assess the effectiveness of programs and their impact on communities.

We have designed our new programs to address the needs of South Carolinians now and in the years ahead. With continued support of our Public Service Activities, we will make South Carolina more competitive in both the national and international arenas.



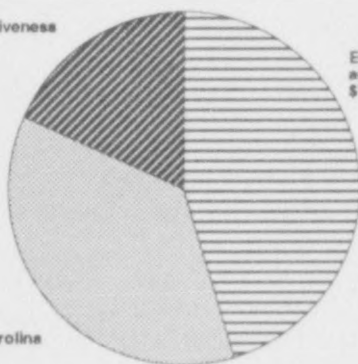
Milton B. Wise  
Vice President and Vice Provost  
Agriculture and Natural Resources

## Summary of the Request

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Enhancing Agriculture's and Forestry's Future .....	\$7,325,226
Developing Rural South Carolina .....	\$5,730,945
Increasing Program Effectiveness .....	\$2,908,000
Total PSA Request .....	\$15,964,171

Increasing  
Program Effectiveness  
\$2,908,000



Enhancing Agriculture's  
and Forestry's Future  
\$7,325,226

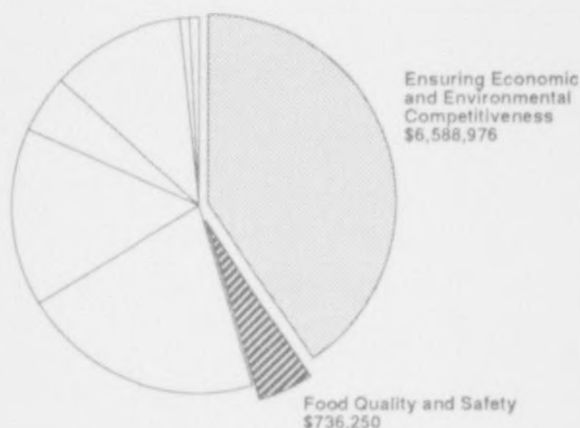
Developing  
Rural South Carolina  
\$5,730,945

02752



# Enhancing Agriculture's and Forestry's Future

\$7,325,226



## Ensuring Economic and Environmental Competitiveness

Enhancement of the economic and ecological base of agriculture and natural resources is a key concern in South Carolina today. People are worried about the effects of agricultural chemicals on ground and surface water, wildlife habitats, and the ecology of production systems. At the same time, South Carolina producers in the agriculture and forestry industries expect to compete successfully in interstate commerce and international trade.

Clemson University will provide leadership to a bold new initiative dedicated to balancing cost-effective production of agricultural and forestry products with enhancement of environmental quality. This initiative will enhance the future of agricultural and forestry industries in South Carolina by speeding adoption of profitable, efficient and environmentally sound production methods.

**02753**

The initiative will provide scientifically sound data on which to base current production systems and

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will also evaluate the profitability of alternative production technologies, placing the agriculture and forestry industries in a position of strength. Extension will conduct aggressive education programs statewide to transfer superior know-how to producers and dependable information to decision makers and the public.

Focal points will include study of fertilizers, animal feeds and pest control agents and their most efficient use; improved plants and animals through biotechnology and conventional genetic manipulation; improved management and production practices; and potential for integrated production systems.

Related projects include the study of effects of air pollution on forest tree growth that could lead to genetic and cultural methods to reverse the trend of declining forests in South Carolina. Environmental assessment of forested wetlands will explore ways to extract forest resources while preserving the habitat and ecological integrity of the wetlands, including the ability to retard water runoff and to improve water quality. These benefits are supported by activities at the Clemson Experimental Forest and the South Carolina Botanical Garden at Clemson, studies of the relationship of game and non-game animals, development of new and broader markets for forest products and development of new wood products, such as composites.

## Food Quality and Safety

Programs affecting the quality and safety of food are focusing on how to eliminate contaminants from the food supply in various stages of production, harvesting, processing, packaging and storage. Contaminants include bacteria and microbial pathogens, chemical additives and residues, pesticides, mycotoxins and viruses. Clemson proposes to study the ways these enter the food supply and ways to eliminate them from foods. This effort will assure a food supply that is high quality and safe.

Often nutrients are present in the food supply but not available/digestible because of the processing method or inadequate processing. Studies of bioavailability/digestibility of nutrients will provide information to enhance economics of animal production and to ensure healthy dietary recommendations for humans.

# Developing Rural South Carolina

\$5,730,945



02755

## Human Capital and Society

Clemson's dedication to the development of rural South Carolina is an important key to the state's future. Programs focus on housing and home moisture problems, human nutrition, health and wellness, water quality and conservation, financial planning and retirement, rural leadership, parenting, youth development, rural education and information, production and marketing, and international trade and finance. New tools are being developed to assess the effectiveness of these educational programs and their impact on communities.

Leadership development and education are vital links to progressive and responsible development of rural South Carolina. Palmetto Leadership, a project partially funded by the W.K. Kellogg Foundation, is now educating local leaders in four pilot counties with plans to expand the program to other counties. These leaders are acquiring skills needed to bring change and economic growth to their areas.

An impact study will evaluate leadership roles



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in communities with and without leadership programs. Youth development programs are attacking problems such as teen pregnancy, drug abuse, dropout rates, and crime by focusing on career, communications and leadership skills. The problems of teens and youth are also the focus of a program on parenting skills, currently proposed for 25 counties.

Rural economics development education, a joint program with the Strom Thurmond Institute, will provide materials and instruction in business development and retention, local government finances, and recreation and tourism development.

Studies of rural educational needs will provide information on the extent of underfunding in rural counties, which programs need increased funding or emphasis and how to finance those programs. Rural educational development will be enhanced by a proposed Rural Information Center that would gather, organize and store social, economic and demographic information on communities, counties and other areas of the state.

## Employment and Income

02756

Jobs, the work force, trade and finance, marketing, alternative enterprises, and personal finances are important aspects of rural development. The state's agricultural expansion requires both increased production of current fruits and vegetables as well as introduction of new crops that will open up new markets.

Studies on international trade and the value of the dollar relative to other currencies will give producers better information on which to base marketing decisions.

Marketing and farm financial management are the educational programs most needed by farmers to increase income. These programs will provide training and information to expand the fruit and vegetable industry in the state and to increase profitability in the dairy industry.

Rural and small-town tourism may provide another alternative for diversifying the rural economy, and Clemson efforts will assess the historic, natural and cultural assets that could be the basis for a broadened tourism industry in South Carolina.

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South Carolina has become one of the most popular states for in-migrant retirees. Planning for the future influx of retirees and accommodating those in-state already will provide a challenge. Effective planning now will assure the continued attractiveness of the state.

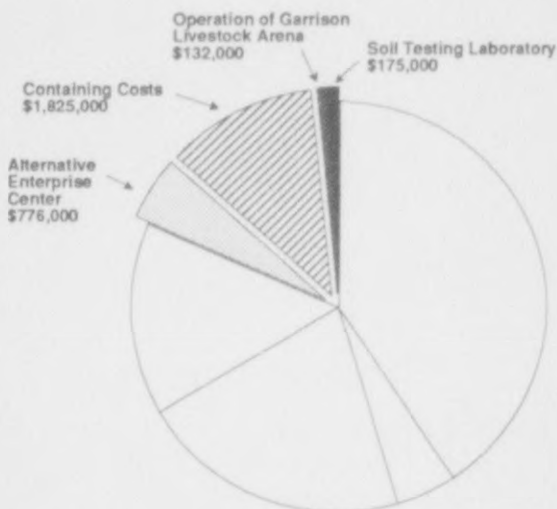
Financial problems plague young and midlife as well as older South Carolinians, including retirees who must live on a fixed income. Programs on financial planning and retirement deliver information to improve financial decision making skills at all stages of the life cycle and improve the quality of life from youth through retirement. One persistent expense of concern to South Carolinians is costly damage to homes caused by moisture problems. Continued research will identify, prevent and correct them.

Enhancing the quality of rural life, in addition to improving economic conditions and preserving the environment, includes the availability of recreation and leisure resources. Rural areas, though they have numerous recreational assets, do not have local expertise for most advantageous use of those assets. A program to use recreation as a medium for youth development in rural South Carolina is proposed for five communities. Experiences from the program will provide a medium through which youth and adults can establish a positive self-image.

02757

# Increasing Program Effectiveness

\$2,908,000



## Alternative Enterprise Center 02758

The mission of the center, a functional organization of research and extension personnel, will be to promote economic competitiveness and revitalization of agribusiness in South Carolina. The center will focus on new crops and processes, alternative practices and innovative marketing strategies. Research and extension programs will involve industry and producers, which will encourage rapid implementation of new ideas and techniques.

### Containing Costs

An opportunity exists to pay off equipment leases and centralize repair and maintenance functions that would save money and improve efficiency. Leased equipment includes tractors, copiers and telephone systems. Maintenance and purchase of additional equipment are needed to lessen future replacement costs and to complete installation of computers in county offices. Funds are also needed to fund state-mandated



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pay increases for employees paid from federal funds. Federal funds have not increased to meet the state pay raises, and thus operating funds must be used to cover this expense.

### **Operation of the T. Ed Garrison Livestock Arena**

Construction of the T. Ed Garrison Livestock Arena will begin soon and, when completed, will provide a place in South Carolina for many events now held in other states. Construction funds were obtained through the bond bill, but no funds have been appropriated for operating the facility. Funds are requested to cover operating costs until it becomes economically self-sufficient. Costs will include funds for an arena director, clerical support, travel, utilities and insurance.

### **Soil Testing Laboratory**

Two major pieces of equipment are needed to expand and enhance the capabilities of the Soil Testing Laboratory. A plasma spectrophotometer and a sulphur analyzer would significantly improve the services being provided to farmers and other producers in the state. This state-of-the-art equipment would improve effectiveness, reduce turnaround time and give analyses and results currently unavailable to producers. Additional resources are needed to realize these savings.

**02759**

## *Divisions and Their Requests*

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Agricultural Experiment Station .....	\$6,875,250
Cooperative Extension Service .....	\$5,750,745
Forest and Recreation Resources .....	\$1,685,000
Division of Regulatory Services .....	\$660,100
Livestock-Poultry Health .....	\$200,000
State Energy Programs .....	\$74,000
Agromedicine .....	\$188,076
South Carolina Botanical Gardens .....	\$531,000
TOTAL REQUEST .....	\$15,964,171

**02760**

## *For More Information, Contact:*

---

**Milton B. Wise**  
Vice President and Vice Provost  
Division of Agriculture and  
Natural Resources  
656-3015

**B. K. Webb**  
Dean and Director  
Cooperative Extension Service  
656-3382

**James R. Fischer**  
Dean and Director  
Agricultural Experiment Station  
656-3140

**Benton H. Box, Dean**  
College of Forest and  
Recreation Resources  
656-3215

**Calvin L. Schoulties, Director**  
Division of Regulatory and  
Public Service Programs  
656-3005

**Jones W. Bryan, Director**  
Livestock-Poultry Health Division  
788-2260

**02761**



# A WISE PUBLIC INVESTMENT

## \$1,000 INVESTED YIELDS \$12,000 RETURN

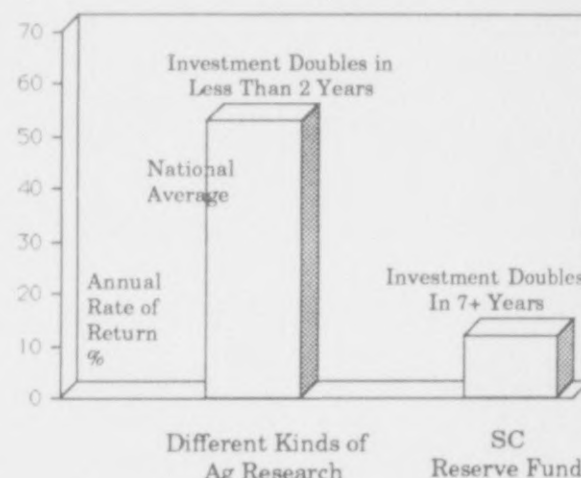
According to a study by Yale economist Robert Evenson, every \$1,000 invested in agricultural research on a national average has yielded \$12,000 in returns. Investment in agricultural research continues to be a necessary component of a strong agriculture and natural resource economy and effectively pays for itself.

These returns are measured in the value of added production. In the South, that added farm production from the research will peak within five years from the time the investment is made and then level off.

## AG RESEARCH IS A PROFITABLE ALTERNATIVE

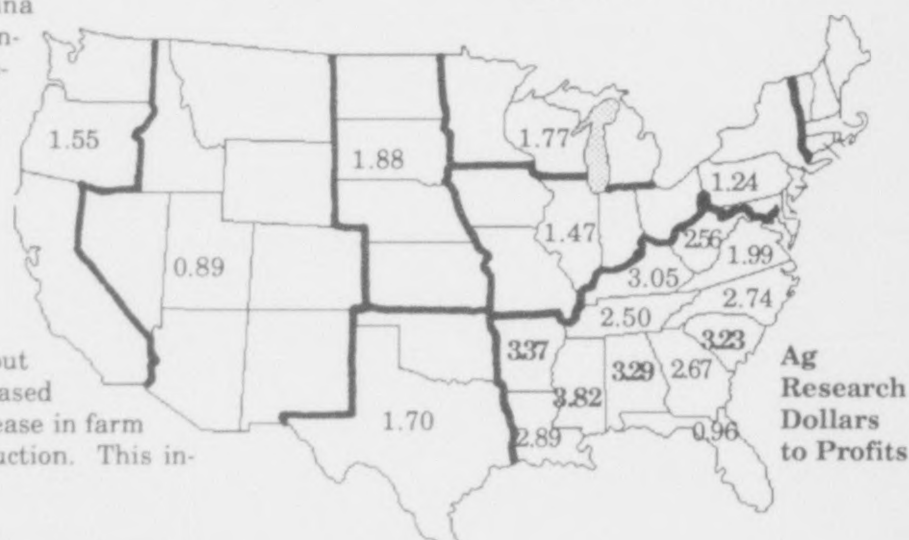
Investing in agricultural research is a profitable alternative to accruing reserve funds. For example, it takes seven years for a S.C. Reserve bond to double in value at the annual rate of 10 percent. National studies show that in an average of only two years the added value of farm income can more than double the initial investment in agricultural research.

Rate of Return



## S.C. RANKS FOURTH IN THE NATION

We in South Carolina can expect to do even better with our investment in agricultural research. South Carolina ranks fourth in the nation in effectively converting agricultural research dollars into revenue for the state. The map at the right shows conversion ratios for Southeastern states and averages for other regions of the country.



## AG RESEARCH RETURNS PRINCIPAL & INTEREST TO STATE TREASURY

How does agricultural research bring about this kind of return on investment? The increased income for farm research results in an increase in farm income and in gross sales from farm production. This increases the state's tax base.

### Added Value from Research

\$12,000/\$1000 Value of Added Output of Farm Products

Personal Income	0.5412	x	\$12,000	=	\$6,494.40
State Gross Sales	1.8943	x	\$12,000	=	\$22,731.60
Added Sales Tax Base	\$22,731.60	x	80%	=	\$18,185.28

0.5412 = Total Income Generated for Every \$ of Farm Sales  
1.8943 = Every \$ of Farm Sales Generated Results in \$1.89 of Total Gross Sales

Added Personal Income	\$6,494.40	x	Added Income Tax Rate	7%	=	Added Income Tax Revenue	\$454.60
Added Sales Tax Base	18,185.28	x	Sales Tax Rate	5%	=	Added Sales Tax Revenue	\$909.26

Added Tax Revenues Per \$1000 Invested in Ag Research **\$1,363.86**

## HOW TO PARTICIPATE

Advance reservations are being accepted for speaking time on a first-come basis, by phone or mail, for each of the public meetings. Speakers will be limited to eight minutes apiece and may bring printed handouts since time and facilities do not allow for audio-visual presentations. In addition to the scheduled speakers, others who have registered in advance or at the door will be accommodated as time permits.

To request speaking time, call 656-3015 (8 a.m.-4:30 p.m. weekdays) or send your name, address, telephone number, affiliation, topic to be discussed and meeting location to:

Trustee Meetings  
Office of the Vice President for Ag and Natural Resources  
101 Barre Hall  
Clemson University  
Clemson, S.C. 29634.

*Specific speaking times may be requested.*

### CLEMSON UNIVERSITY BOARD OF TRUSTEES AGRICULTURE AND NATURAL RESOURCE COMMITTEE MEMBERS



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S.C. Electric & Gas Co.  
Columbia

## More About Clemson Agriculture and Natural Resources...

The Clemson University Division of Agriculture and Natural Resources is responsible for instructional, research and public service programs in the College of Agricultural Sciences and the College of Forest and Recreation Resources.

In addition to teaching students, the College of Agricultural Sciences administers statewide public service programs, including the Clemson

Cooperative Extension Service, the S.C. Agricultural Experiment Station, the Division of Regulatory and Public Service Programs and the Livestock-Poultry Health Division.

The scope of the College of Forest and Recreation Resources' programs also spans the entire state and touches the lives of all South Carolinians through teaching, research and Extension activities

in forest management, wood utilization, recreation resources and services, and tourism management.

During the past century of service to the state, the agriculture divisions and their leaders have emphasized agricultural production and improved family life. Objectives for the university's second century are to increase productivity, increase employment opportunities, and conserve and protect our natural resources.

### BLACKVILLE



7 P.M. NOV. 28: CLEMSON PEE DEE  
RESEARCH & EDUCATION CENTER, POCKET ROAD, FLORENCE



7 P.M. DEC. 12: CHARLESTON  
ST. ANDREWS HIGH SCHOOL AUDITORIUM  
721 WAPPOO ROAD

**ALL MEETINGS END AT 10 P.M.**



# PUBLIC MEETINGS



**Objectives:** To seek input from the taxpaying public of the state to create a more responsive, productive Division of Agriculture and Natural Resources

This unique series of five public meetings at various locations around the state will give you an opportunity to sound off to the leadership of Clemson University...to express your ideas on how Clemson can best serve the needs of South Carolina in agriculture and natural resources.

As the State's Land Grant University, Clemson has a special mission to serve the people of South Carolina. To fulfill that mission in teaching, research, extension and public service, Clemson needs to hear your assessment of current services and your ideas for the future. It is one of the University's goals to be responsive to the needs of the state.

Now for the first time ever the Clemson University Board of Trustees has established a standing committee on Agriculture and Natural Resources. Those five trustees and other key administrators within the division of Agriculture and Natural Resources will be at the public meetings to LISTEN and gather input, not to answer questions or to engage in debate. You are cordially invited to participate.

## WHEN AND WHERE



7 P.M. OCT. 3: GREENVILLE  
CHAMBER OF COMMERCE, 24 CLEVELAND ST.



7 P.M. OCT. 24: COLUMBIA  
RIVERBANKS ZOO, I-26



7 P.M. NOV. 14: CLEMSON EDISTO  
RESEARCH & EDUCATION CENTER, HWY. 78 WEST



# EXHIBIT

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

PRESENTATION TO

BUDGET AND CONTROL BOARD

BUDGET REQUEST INCREASES  
FY 1989-90

STATE DEVELOPMENT BOARD

September 6, 1989

02764

Prepared By

Wayne L. Sterling  
Director

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Budget Request FY 1990-91  
State Development Board

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## INTRODUCTION

Fiscal year 1988-89 was an excellent year for economic development in South Carolina. The state once again took full advantage of the strength of the national economy to grow at a faster rate than the country and the Southeast. South Carolina also set records in capital investments, unemployment rates, and per capita income.

### Capital Investments and Employment

- \* A historical record was set in FY 1988-89 in capital investments when almost \$3.3 billion was invested by companies locating or expanding in South Carolina. This record was 37.5% higher than the \$2.4 billion announced the prior fiscal year.
- \* 19,526 new jobs were created in FY 1988-89 as a result of these investments.
- \* Capital investment for calendar year 1988 set a record of \$3.7 billion. This figure was the second highest investment (after Texas) of the 17 states that comprise the Southern Industrial Development Council.
- \* Diversification in investment continued in the fiscal year with 32% in paper and printing, 30% in chemicals, 16% in metals and equipment, 5% in textiles, 2% in headquarter facilities, and 15% in miscellaneous categories.
- \* Fully 83% of the capital investments and 58% of the new jobs created were the result of expansions by existing companies.
- \* Foreign-affiliated investments continued to set records with \$905 million in FY 1988-89. European investments accounted for 63% and 34% were from the Pacific Basin. Employment from foreign investment was 3,344, an increase of 27%.
- \* Rural counties continued to benefit with 25% of the capital investment and 46% of the new jobs.

### Unemployment Rates

- \* In 1988, the state's unemployment rate of 4.5% was below a six state Southeastern average of 5.5% and a national average of 5.6%.
- \* The unemployment rate hit a low of 3.7% in May of 1989 and moved South Carolina's national ranking from #23 to #13.

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- \* South Carolina's labor force increased by 5.7% or 94,400 during the fiscal year.

#### Per Capita Income

- \* South Carolina's 1988 per capita income was \$12,926. This represented an increase of 7% over last year and was higher than the national average increase of 6.6%.
- \* The state achieved a ranking of 38 in the nation, the highest ranking ever achieved. This ranking was an improvement of three places over last year's ranking.
- \* This new ranking marks a dramatic rise in per capita income for South Carolina in the past ten years. In 1979, South Carolina ranked 49th nationally.

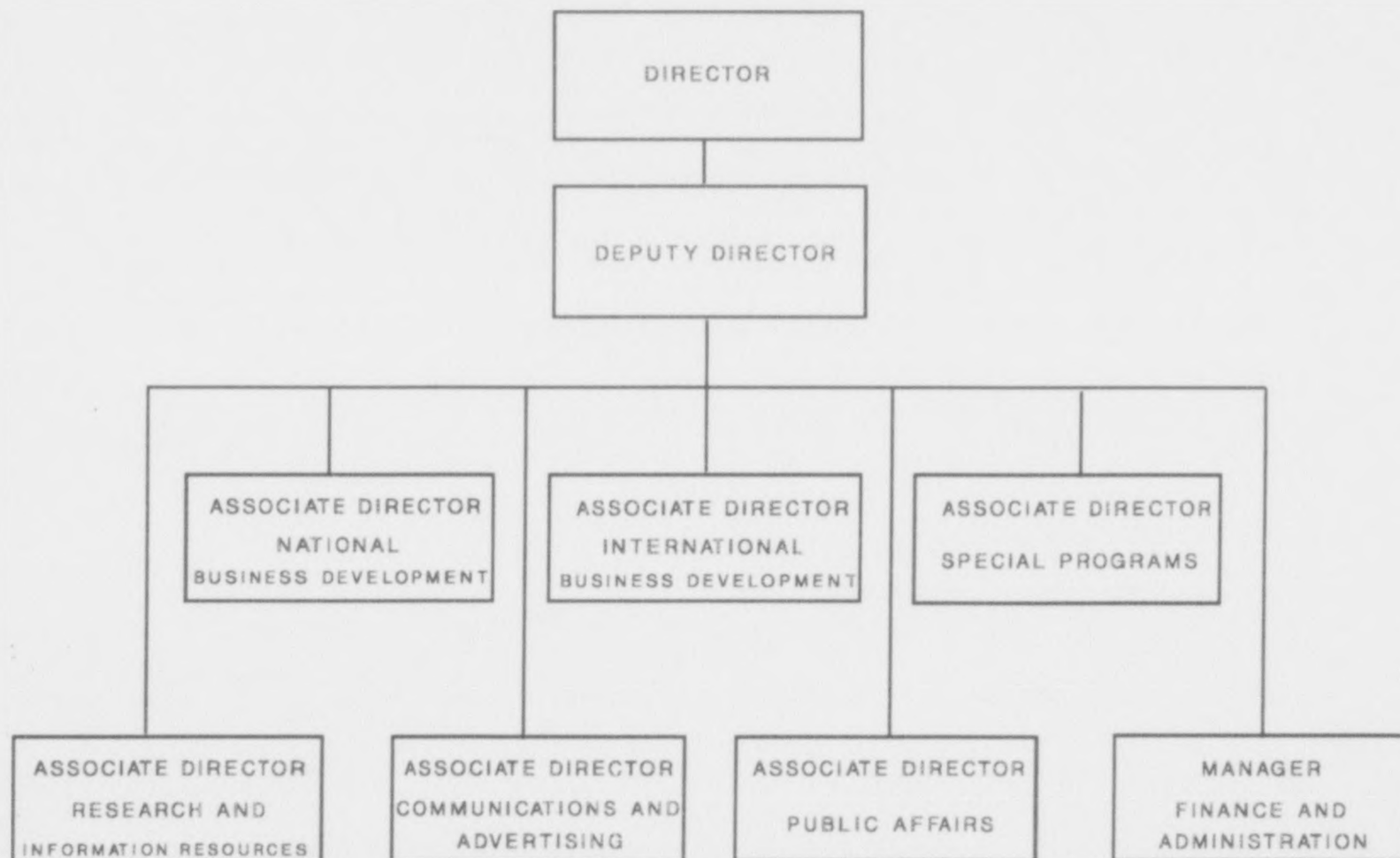
In addition to these gains, South Carolina also received national recognition for its economic development program, and the Governor and Legislature continue to promote economic development through legislative initiatives.

- \* Willamette Industries was named one of the Top 10 Outstanding Development Deals of 1988 by Site Selection and Industrial Development.
- \* The Development Board received the Industrial Development Research Council's (IDRC) Outstanding Area Research Award for 1989 for the Infrastructure and Economic Development project.
- \* Five South Carolina cities (Anderson, Charleston, Columbia, Florence, and Greenville) make MONEY's list of 300 best places to live in the country.
- \* The legislature passed the Airline Hub Bill and enacted amendments to the Corporate Headquarters, Fee-in-Lieu, Jobs Tax Credit, and Seed Capital Fund legislation.

South Carolina has the unique opportunity to sustain the momentum that has been created in economic development and to aggressively build quality jobs and investments through a more competitive program. While the national economy plays a major role in economic development, the State Development Board is committed to a proactive program of economic development. We have targeted opportunities in defense, high-technology manufacturing and service sectors, and international investments to ensure that the momentum built is sustained for increased diversification and per capita income. This budget request reflects this commitment to a proactive and competitive program of economic development.

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S.C. STATE DEVELOPMENT BOARD  
EXECUTIVE STAFF  
ORGANIZATIONAL STRUCTURE



# EXHIBIT

SEP 6 1989 NO. 1

BUDGET REQUEST FY 1990-91  
STATE DEVELOPMENT BOARD

STATE BUDGET & CONTROL BOARD

## FACT SHEET

Requested budget increase amount for FY90-91 -- \$3,324,301.

Total budget for FY90-91 -- \$12,072,817.

Percentage increase over FY89-90 -- 22.5%.

Requested budget increase in personnel funds for FY90-91 --  
\$370,802 or 12.0%.

Total number of new positions -- 10.

Total number of positions in the Agency for FY90-91 -- 107.

The actual budget amounts including numbers of personnel for the  
Agency for the past four (4) years:

<u>Budget Year</u>	<u>Amount</u>	<u>Number Positions</u>
86-87	\$5,413,621	73
87-88	\$5,911,454	75
88-89	\$8,278,520	81
89-90	\$9,253,025	97



BUDGET REQUEST FY 90-91  
DIVISION BASIS  
STATE DEVELOPMENT BOARD

Division	Requested Budget Increase				Total	New Pos.
	Recurring	Priority	Nonrecurring	Priority		
Executive & Board	\$ 20,000	8	\$ 0	0	\$ 20,000	0
National Bus. Dev.	\$ 95,000	2	\$ 0	0	\$ 95,000	0
International Bus. Dev.	\$ 90,191	3	\$ 60,000	3	\$150,191	1
Special Programs	\$ 78,586	5	\$200,000	4	\$278,586	2
Research & Info. Resources	\$223,286	1	\$682,950	1	\$906,236	5
Communications and Advertising	\$611,120	7	\$428,138	2	\$1,039,258	1
Public Affairs	\$205,000	6	\$100,000	5	\$305,000	0
Finance and Administration	\$520,030	4	\$ 10,000	6	\$530,030	1
Totals	\$1,843,213		\$1,481,088		\$3,324,301	10

## JUSTIFICATION OF REQUEST

### RECURRING FUNDS

1. Research and Information Resources - Net Requested Increase  
\$223,286

#### INFORMATION SYSTEMS \$112,133

##### Program Description

The agency conducted a comprehensive needs assessment and evaluation of the current and potential use of information technology for economic development. Based on this assessment, a new information technology strategy has been designed.

##### Personnel \$69,133

Two positions are requested to meet the increased needs of the Information Technology Department. One position is requested for network management, database development, and user training and consultation. A position is also requested for the management of the DIAL-IN program, which is an information bank for economic development allies at the local level.

##### All Other Expenses (Operating Funds) \$43,000

Includes three major areas: (1) maintenance costs for a larger computer network (\$25,000); (2) staff development and training (\$8,000); and, (3) hardware and software (\$10,000).

##### Program Benefits

Enhance staff productivity and the ability to "work smarter" by providing all appropriate staff with the resources to enable technology to be used as a "decision-support" tool for economic development.

#### PROSPECT RESEARCH \$74,586

##### Program Description

Prospect proposals are developed to address the customized information and analysis needs of individual companies considering locating or expanding in the State. The prospect research program designs and prepares customized and comprehensive information packages to market the state to company clients as well as to site location consultants.

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Personnel \$66,586

Two positions are requested to support the workload of this department.

All Other Expenses (Operating Funds) \$8,000

Includes: travel (\$2,000), professional training and staff development (\$3,000), prospect expenses (\$1,000), contractual expenses (\$2,000).

Program Benefits

Ability to respond to client needs with accurate, comprehensive, and customized proposals, and thereby, market South Carolina more professionally and successfully for capital investments and jobs.

ECONOMIC DEVELOPMENT/GIS PROGRAM \$36,567

Program Description

The South Carolina Economic Development/GIS Planning Program utilizes innovative geographical information systems technology and has three major objectives: (1) to assist the Coordinating Council for Economic Development and the Highway Oversight Committee in evaluating the economic development impact of infrastructure projects; (2) to develop a statewide economic development planning network and capacity in the State; and (3) to develop highly customized information and an innovative prospect presentation tool for business, industry, and site location clients.

Personnel \$34,567

One position is requested to enable the program, utilizing Geographical Information Systems technology, to be expanded and utilized specifically for prospect research and presentations.

All Other Expenses (Operating Funds) \$2,000

Staff development and training (\$2,000).

Program Benefits

Ability to access and customize information to a degree never before possible to meet a client's needs, and thereby to give the economic development program a visibly competitive edge.

02773



2. National Business Development - Net Requested Increase  
\$95,000

CONSULTANTS' STRATEGY/IDRC PROMOTION \$75,000

Program Description

Additional allocation is requested in order to expand the Division's Consultants' Strategy and build on the foundation established with the Industrial Development Research Council (IDRC).

All Other Expenses (Operating Funds) \$75,000

Costs for the expansion of the Consultants' Strategy (\$50,000) is to provide ten trips for consultants whereby the State Development Board will furnish transportation, meals, and lodging to the consultant group.

The Industrial Development Research Council (IDRC) is an organization made up of corporate real estate executives and economic development professionals. It is anticipated that this promotion could be accomplished with an additional \$25,000.

Benefits Derived

Expanding the Consultants' Strategy and South Carolina's effectiveness at IDRC will enhance our position with those corporate real estate executives and consultants that control new business and industry locations.

OPERATIONS \$20,000

Program Description

The State Development Board will become more aggressive in its approach concerning the implementation of new projects. While South Carolina has set a standard for response time to initial inquiries as a whole, we will continue to move forward in our approach.

All Other Expenses (Operating Funds) \$20,000

Travel \$10,000, and \$10,000 for commercial air and auto rental.

Benefits Derived

By providing a more personalized response technique, South Carolina will increase its chances of attracting more and better paying job opportunities.

3. International Business Development - Net Requested Increase  
\$90,191

DIRECT INVESTMENT \$90,191

Program Description

This program enhances our ability to respond to the increasingly dynamic global marketplace while simultaneously increasing South Carolina's efficiency and flexibility internationally.

Personnel \$40,191

One professional level position is needed to meet increased demands of greater international activity generated by an increase in staff from the FY89-90 budget request. This person will handle direct foreign investment prospects who are looking at locations in South Carolina.

All Other Expenses (Other Operating Funds) \$50,000

Additional travel funds are needed for an additional staff position (\$12,500); increased funds for prospect expense (\$10,000); and, increased funds are needed for education/conference (\$2,500). Additional trade show participation (\$25,000).

Benefits Derived

Increased efforts in international marketing will result in increased foreign trade for South Carolina firms and will generate additional foreign capital investment which will provide new higher paying jobs for South Carolina citizens.

02775

4. Finance and Administration - Net Requested Increase \$520,030

ADMINISTRATION \$45,030

Program Description

The Finance and Administration Division provides internal administrative support and control services for the entire agency.

Personnel \$45,030

Funding is requested to establish the position of Associate Director, Finance and Administration.

Benefits Derived

Agency funding has increased by 56% since fiscal year 1986-87 in State appropriations only. Staffing has increased by 33% (24 positions) during that same period. Due to these increases, an associate director is needed to manage this important agency function.

AGENCY SUPPORT \$155,000

Program Description

Expenditures for the Postal Center/Supply Room staff, maintenance, telephone, temporary personnel, postage, equipment and other lease costs, and vehicle and aircraft operational costs are accounted for in this section.

Personnel \$20,000

Additional temporary staffing for all divisions.

All Other Expenses (Operating Funds) \$135,000

Freight/express expense (\$5,000) and telephone costs (\$15,000). Postage (\$15,000) and photocopier supplies (\$5,000). Fixed charges (\$95,000), non-state leased property.

Benefits Derived

The temporary budget supports temporary activities in all divisions. The costs noted above represent activity costs as well as increases in costs.



SCHOOL-BASED ENTERPRISES \$225,000

Program Description

With the goal of revitalizing the rural economy, the School-Based Enterprises are businesses created and operated by students (in cooperation with local educational institutions) that fill gaps in the local economy while providing entrepreneurial, vocational, and academic training.

All Other Expenses (Operating Funds) \$225,000

In FY90-91 there will be 20 schools participating, and the federal funds will not be available. State funding will be necessary to continue South Carolina's School-Based Enterprise program.

Benefits Derived

Motivates high school, adult, and post-secondary students through real life, active, hands-on learning experiences.

Creates a climate and process which stimulates the formation of indigenous businesses in rural South Carolina.

TECHNOLOGY TRANSFER \$95,000

Program Description

State organizations currently involved in technology transfer will be brought together to develop a statewide strategic direction to (1) refine our research programs, (2) respond to growing requirements of the industrial community, and (3) target new strategic opportunities.

Cost

Contractual Services (\$95,000): To support the research, analysis and coordination development of a program to bring successful research to market.

Benefits Derived

Enhance long-term economic growth, stability and entrepreneurial growth of South Carolina which directly relates to increased job opportunities for South Carolinians.

02777

5. Special Programs - Net Request Increase \$78,586

AVAILABLE SITES AND BUILDINGS \$39,293

Program Description

This program collects, maintains, and packages information on available industrial buildings and sites for prospects.

Personnel \$33,293

A position is requested to replace a temporary consultant to respond to the growing demand as a result of increased prospect activity.

All Other Expenses (Operating Funds) \$6,000

Travel funding (\$2,000), commercial air/auto (\$1,000), and prospect expenses (\$1,000) are needed to support this new position and effort. Education and conference expenses (\$2,000).

Benefits Derived

This additional position will help ensure the agency's ability to respond to site and building information needs of prospects.

RURAL AND COMMUNITY DEVELOPMENT \$39,293

Program Description

The Office of Rural and Community Development works directly with rural communities and counties in the evaluation of existing economic development efforts and in the development of comprehensive local development programs, and links the resources of state and private resources to the specific needs of local areas.

Personnel \$33,293

One position to assist in the development and delivery of information and training of state and local professionals, local officials, and citizens in the practices and principles of economic development through the Economic Development Institute.

All Other Expenses (Operating Funds) \$6,000

Travel funding (\$2,000), commercial air/auto (\$1,000), and prospect expenses (\$1,000) are needed to support this new position and effort. Education and conference expenses (\$2,000) are needed for the total program.

Benefits Derived

The additional increases will make these areas more successful in attracting industry/business and in growing or expanding existing firms. The net result of which will be more and better jobs and an expanded tax base for local areas. With an increased local capacity, the state's financial support can be reduced.

02779



6. Public Affairs - Net Requested Increase \$205,000

ADMINISTRATION \$60,000

Program Description

This program area includes management of the Public Affairs Division (including contractual services for specific special events).

In FY90-91, this department will be managing a national and international public relations account with a contracted firm. This department will also be managing the contract with Black, Manafort, Stone and Kelly, our Washington public relations firm.

The department coordinates closely with the Governor's Office on all development activities and travels with the Governor's party on all overseas and domestic missions and works with media to gain advance and follow-up coverage.

Cost

Specific items requested are funding of a national/international public relations contract (\$40,000) and travel funds (\$20,000).

Benefits Derived

This investment in a national/international public relations firm, which has contacts so vital to the State in getting our story in the right publications not only in this country but also overseas, will produce tremendous exposure for South Carolina. Additional travel funds are needed for staff travel on overseas trips plus increased domestic travel to coordinate activities with national press, national public relations firms and our Washington delegation.

02780

SPECIAL PROJECTS \$145,000

Program Description

Special Projects staff coordinates all special promotional events for the Development Board and works in close cooperation with our allies.

Cost

International Weekend (\$35,000); Heritage (\$10,000); Spoleto (\$10,000); Creation of "Showcase South Carolina" (the name will change to differentiate from the Columbia Chamber) (\$25,000); three events held during national trade shows (\$15,000); and, Statewide Business and Industry Week (\$50,000).

Benefits Derived

Investing in South Carolina's image will enhance our efforts in attracting potential investors. Opportunities to showcase the many attributes of South Carolina through existing and created events will result in increased interests by top decision makers and a higher percentage of favorable decisions made by those who participate in our events.

02781

7. Communications and Advertising - Net Requested Increase  
\$611,120

ADMINISTRATION \$76,859

Program Description

This program consists of the management of design and production for all collateral materials in English and foreign languages (to include videos, slides, direct mail material, posters, brochures, newsletters, directories, and displays). Also, the management of all advertising media, which includes the production and placement of print and electronic media advertisements used to market South Carolina to a national and international business audience, is part of this program.

All Other Expenses (Operating Funds)

Booth displays (\$25,359); translation services (\$51,500).

Benefits Derived

The state's international marketing efforts are ineffective without professionally translated marketing materials. The requested funding will enable cultural translations of existing materials to be produced to support trade and marketing missions.

SOUTH CAROLINA FILM OFFICE \$65,209

Program Description

The South Carolina Film Office is responsible for the recruitment of motion picture, television, and commercial production and provides leadership in the development of an indigenous film industry infrastructure.

Personnel \$28,709

Funds are required to hire one full-time professional level staff member, an associate manager for the Film Office.

All Other Expenses (Operating Funds) \$36,500

Specific items requested are (\$15,500) for producing three professional development seminars to train location scouts and (\$21,000) to increase the location scouting activities.

02782



#### Benefits Derived

The additional personnel will enable the Film Office to address the increased demand for information on filming in South Carolina.

The dramatic increase in the demand for assistance is fueled by our aggressive marketing strategy and has stretched the limited resources of the office.

The Film Office is a revenue generating program and contributes income to the State well in excess of the funding for the office. For example, based on a 5% sales tax, the \$19.77 million of direct spending generated by the office in FY88-89 contributed \$980,000 to the state, well in excess of the \$225,000 allocated to the Film Office.

#### PRINTING, BINDING, AND ADVERTISING \$469,052

##### Program Description

As the lead marketing agency for economic development in South Carolina, the Communications and Advertising Division is charged with actively promoting the State as an excellent business location to a national and an international audience.

##### Cost

The following funding is needed: Production of accurate and up-to-date national and international prospect marketing materials (\$200,000); conducting a direct mail campaign (\$61,342); vertical publication advertising to support direct mail (\$55,532); increasing the frequency in targeted national and international business publications (\$105,857); and, increasing Film Office advertising (\$46,321).

##### Benefits Derived

Funding of the requested increase in the targeted industry marketing initiative will raise the awareness of South Carolina among industries' decision makers and support the State's entry into new industrial markets. The advertisements placed in vertical publications will reinforce direct mail efforts and will produce qualified prospect leads.

02783

8. Executive and Board - Net Requested Increase \$20,000

EXECUTIVE

Program Description

The Director's Office is responsible for providing direction and overall management of the agency.

All Other Expenses (Operating Funds) \$20,000

Increased travel and travel costs (\$5,000); prospect expenses (\$10,000); and, education and conference expenses of the staff (\$5,000).

Benefits Derived

Increase the effectiveness of the Office of the Director in properly discharging duties and responsibilities by providing overall management and direction for the agency.

· 02784

## JUSTIFICATION OF REQUEST

### NONRECURRING FUNDS

1. Research and Information Resources - Net Requested Increase  
\$682,950

#### INFORMATION SYSTEMS \$192,950

##### Program Description

The agency's information technology strategy was reevaluated to assess both the changing technology marketplace and the more sophisticated needs of the agency. Based on this assessment, a new direction was formulated for a computer network founded on emerging industry trends and an open systems architecture designed to enable the use of speciality software for individual economic development programs and maximum versatility for emerging needs.

Nonrecurring funds include: 45 workstations (\$168,000), 6 scanners (\$8,970), 4 text scanning software (\$1,980), and 4 laser printers (\$14,000).

##### Program Benefits

Enhance staff productivity and the ability to "work smarter" by providing all appropriate staff with the resources to enable technology to be used as a "decision support" tool for economic development.

#### COMPUTER-BASED ECONOMIC DEVELOPMENT TRAINING PROGRAM \$200,000

##### Program Description

This program is designed to develop an assistance and training service to ensure that success begins at the "grassroots" level when marketing the State and working with prospects. The program focuses on developing a computer based training software which can be both cost efficient and substantively effective.

62785



#### Program Benefits

Efficiently and effectively enhance the ability of economic development professionals to promote economic projects, and thus, to capture a larger proportion of potential prospects at the early stages of the process.

#### ECONOMIC DEVELOPMENT/GIS PROGRAM \$60,000

##### Program Description

The South Carolina Economic Development/GIS Program utilizes innovative geographical information systems technology and has three major objectives: (1) to assist the Coordinating Council for Economic Development and the Highway Oversight Committee in evaluating the economic development impact of infrastructure projects; (2) to develop a statewide economic development planning network and capacity in the State; and, (3) to develop highly customized information and an innovative prospect presentation tool for business, industry, and site location clients.

The equipment requested includes: a high quality UNIX based graphics workstation and software (\$40,000), and a large 67" diagonal screen (\$20,000).

##### Program Benefits

Ability to access and customize information to a degree never before possible to meet a client's needs, and thereby, to give the economic development program a visibly competitive edge.

#### STATEWIDE TECHNOLOGY DEVELOPMENT PROGRAM \$230,000

##### Program Description

This program is designed to implement a statewide information bank and technology network.

##### Cost

Average of \$5,000 per county for the purchase of computer hardware, economic development software, modem, and printer on a cost shared basis.

##### Program Benefits

Enable local development boards to be more competitive in economic development.

Enable access to DIAL-IN network which will assist local areas with economic development information, modeling, electronic mail, and computer based training.

2. Communications and Advertising - Net Requested Increase  
\$428,138

ADMINISTRATION \$78,138

Program Description

The development of an eight to ten minute video regarding facts about South Carolina to be used as a prospect recruitment tool.

Benefits Derived

A major need has been identified by the National Business Development Division for a video (or film) presentation that would illustrate the incentives for doing business in South Carolina. The video could be used as a mailer to provide information prior to a prospect meeting, shown during a prospect presentation, taken on marketing missions, used as part of a direct mail effort, and sent to site selection consultants.

PRINTING, BINDING, AND ADVERTISING \$350,000

Program Description

Because of the 55% reduction in supplemental funding in FY89-90, funds requested for printing, binding and advertising were eliminated. This request is made to off-set this deduction.

Benefits Derived

Funds are needed to revise our old promotional brochures which are becoming dated and to produce new types of promotional brochures especially for our international needs.

3. International Business Development - Net Requested Increase  
\$60,000

EXPO '92

Program Description

South Carolina will be one of five or six states to have substantial space inside the United States National Pavilion during the six-month Universal Exposition, Seville, Spain in 1992. A universal exposition is the topmost category in international expositions, as laid down by the International Exhibitions Bureau in Paris.

Costs will be spread over three fiscal years beginning FY90-91. Total costs for the entire program will be \$1,000,000. Other state agencies will be contributors. The balance of monies needed will be obtained from the private sector, not to exceed one-half of the total cost.

The total three-year cost for the South Carolina State Development Board will be \$348,310. Funding of \$60,000 is requested for FY90-91 (\$35,000 for a full-time contract consultant and \$25,000 for travel primarily outside the United States).

Benefits Derived

South Carolina will have a first-class showcase as part of a significant and top quality national presence in Europe for the duration of the exposition.

02788



4. Special Programs - Net Requested Increase \$200,000

Program Description

The Division requests one-time funding for a promotional materials grants and assistance program to aid counties, municipalities, and non-profit economic development entities in the advancement and promotion of our state's economic development potential and attractions.

In FY88-89, a successfully administered promotional materials grant and assistance program was undertaken in which 55 local projects were produced, using \$250,000 in nonrecurring funds.

In FY89-90, because of the success of the previous year's program, direct assistance from the State Development Board was offered to address the need for expanded marketing services in local areas. That assistance primarily took the form of comprehensive marketing and communications planning and an expanded cooperative advertising arrangement.

Benefits Derived

The State Development Board operates as the sales and marketing arm of the State in promoting new and expanded economic investment in South Carolina. To accomplish its objective, the Development Board develops and maintains an inventory of promotional materials to attract and enhance economic development in South Carolina.

02789

5. Public Affairs - Net Requested Increase \$100,000

Special Projects \$100,000

Program Description

This program area manages all special promotional events for the State Development Board.

The Special Projects Department of the Public Affairs Division is making a one-time, nonrecurring request for \$100,000 to assist in the funding of the Southeast-US Korea conference to be held in the fall of 1990 in Charleston.

South Carolina is the 1990 host state of this conference which is comprised of delegates from Korea and seven southeastern states. In the fall of 1990, this conference will bring to Charleston up to 400 business leaders from Korea and the Southeast United States and all of the national and international media that accompany this type of international event.

Benefits Derived

Funding of this request will allow South Carolina, as the host state, to create an event that will showcase the best attributes of South Carolina as a place to do business. South Carolina will be exposed, perhaps for the first time, to top-level national and Korean prospects. An opportunity exists to sell South Carolina as a business and industrial location to top decision makers and to gain media coverage for the State, the benefits of which are incalculable.

02790

6. Finance and Administration - Net Requested Increase \$10,000

Program Description

To hold Enterprise Development conferences in the areas of education, risk capital and entrepreneurial policy.

Cost \$10,000

Seed monies for organization, promotion, and conference facilities.

Benefits Derived

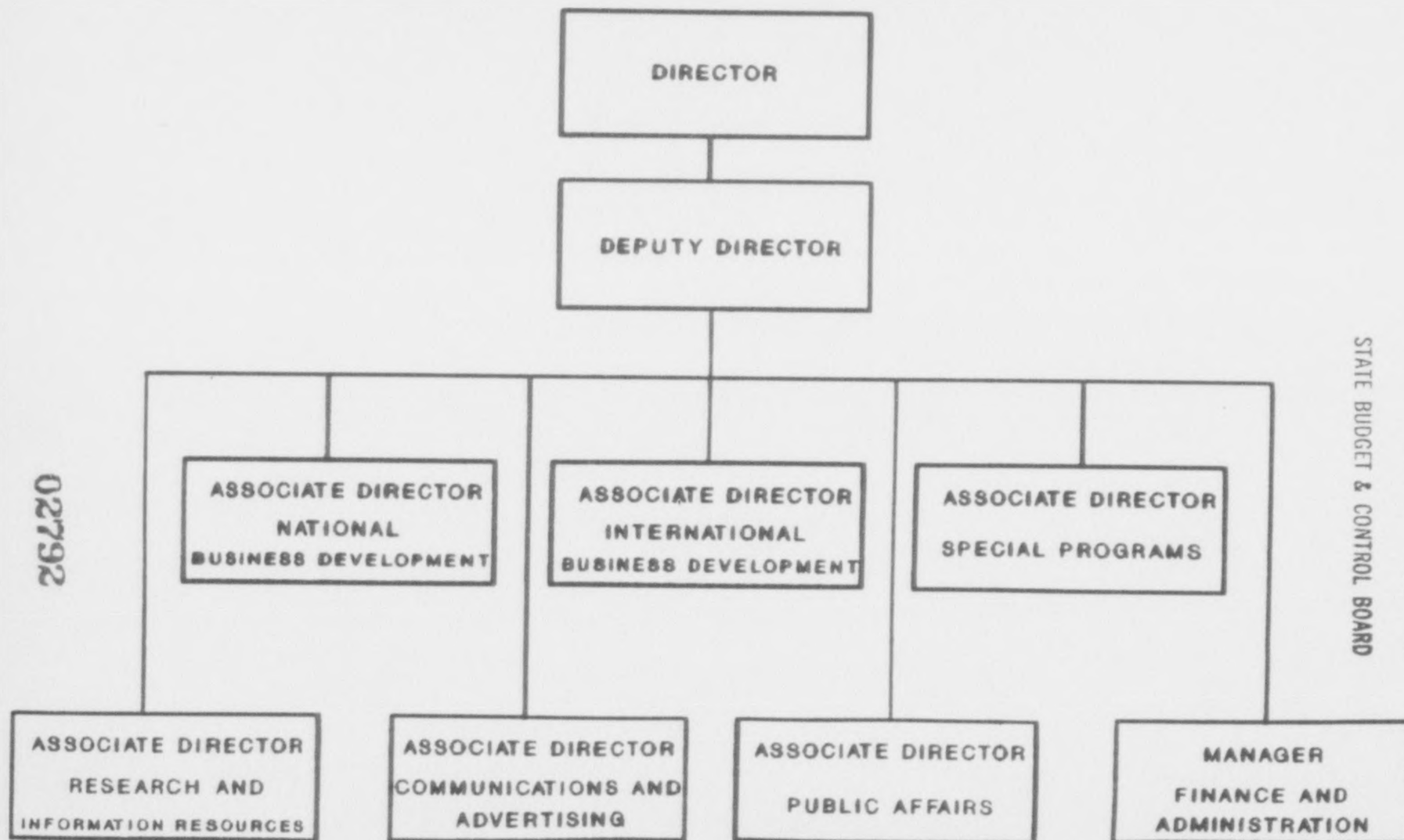
Initiation of new/expanded services for new business ventures which result in growth of jobs and opportunities for South Carolina. Other key benefits include:

- 1) Increased management/technical assistance to improve quality of business operation;
- 2) Decrease in the failure or closure rates of businesses;
- 3) Capital for investment in new business ventures;
- 4) Closer coordination/matching of existing financial resources to business development needs;
- 5) Increased awareness of entrepreneurial development as an integral part of South Carolina's economic development strategy.

02791



**S.C. STATE DEVELOPMENT BOARD  
EXECUTIVE STAFF  
ORGANIZATIONAL STRUCTURE**



**EXHIBIT**

SEP 6 1989 NO. 1

STATE BUDGET & CONTROL BOARD

02792

**BUDGET REQUEST FY 1990-91  
STATE DEVELOPMENT BOARD  
FACT SHEET**

Requested budget increase amount for FY 90-91 - \$3,324,301

Total budget for FY 90-91 - \$12,072,817

Percentage increase over FY 89-90 - 22.5%

Requested budget increase in personnel funds for FY 90-91 -  
\$370,802 or 12.0%

Total number of new positions - 10

Total number of positions in the Agency for FY 90-91 - 107

The actual budget amounts including numbers of personnel for  
the Agency for the past four (4) years:

<u>Budget Year</u>	<u>Amount</u>	<u>Number Positions</u>
86-87	\$5,413,621	73
87-88	\$5,911,454	75
88-89	\$8,278,520	81
89-90	\$9,253,025	97

02793

**BUDGET REQUEST FY 90-91  
DIVISION BASIS  
STATE DEVELOPMENT BOARD**

Division	Requested Budget Increase				Total	New Pos.
	Recurring	Priority	Nonrecurring	Priority		
Executive & Board	\$ 20,000	8	\$ 0	0	\$ 20,000	0
National Bus. Dev.	\$ 95,000	2	\$ 0	0	\$ 95,000	0
International Bus. Dev.	\$ 90,191	3	\$ 60,000	3	\$150,191	1
Special Programs	\$ 78,586	5	\$200,000	4	\$278,586	2
Research & Info. Resources	\$223,286	1	\$682,950	1	\$906,236	5
Communications and Advertising	\$611,120	7	\$428,138	2	\$1,039,258	1
Public Affairs	\$206,000	6	\$100,000	5	\$306,000	0
Finance and Administration	\$520,030	4	\$ 10,000	6	\$530,030	1
Totals	\$1,843,213		\$1,481,088		\$3,324,301	10

02794



## JUSTIFICATION OF REQUEST

1. Research and Information Resources - Net Requested Increase - \$223,286

INFORMATION SYSTEMS \$112,133

Personnel \$89,133

Two Positions -

Associate Manager, Information Technology ,  
Associate Manager, Dial-In Program

All Other Expenses (Operating Funds) \$43,000

\$25,000 - Computer Maintenance Costs

\$10,000 - Software

\$ 8,000 - Education/Conference

PROSPECT RESEARCH \$74,586

Personnel \$66,586

Two Positions -

Associate Managers, Prospect Research

All Other Expenses (Operating Funds) \$8,000

\$2,000 - Travel

\$3,000 - Education/Conference

\$3,000 - Other Contractual Expenses

ECONOMIC DEVELOPMENT/GIS PROGRAM \$36,567

Personnel \$34,567

Associate Manager, Geographical Information Systems  
(GIS)

All Other Expenses (Operating Funds) \$2,000

\$2,000 - Education/Conference

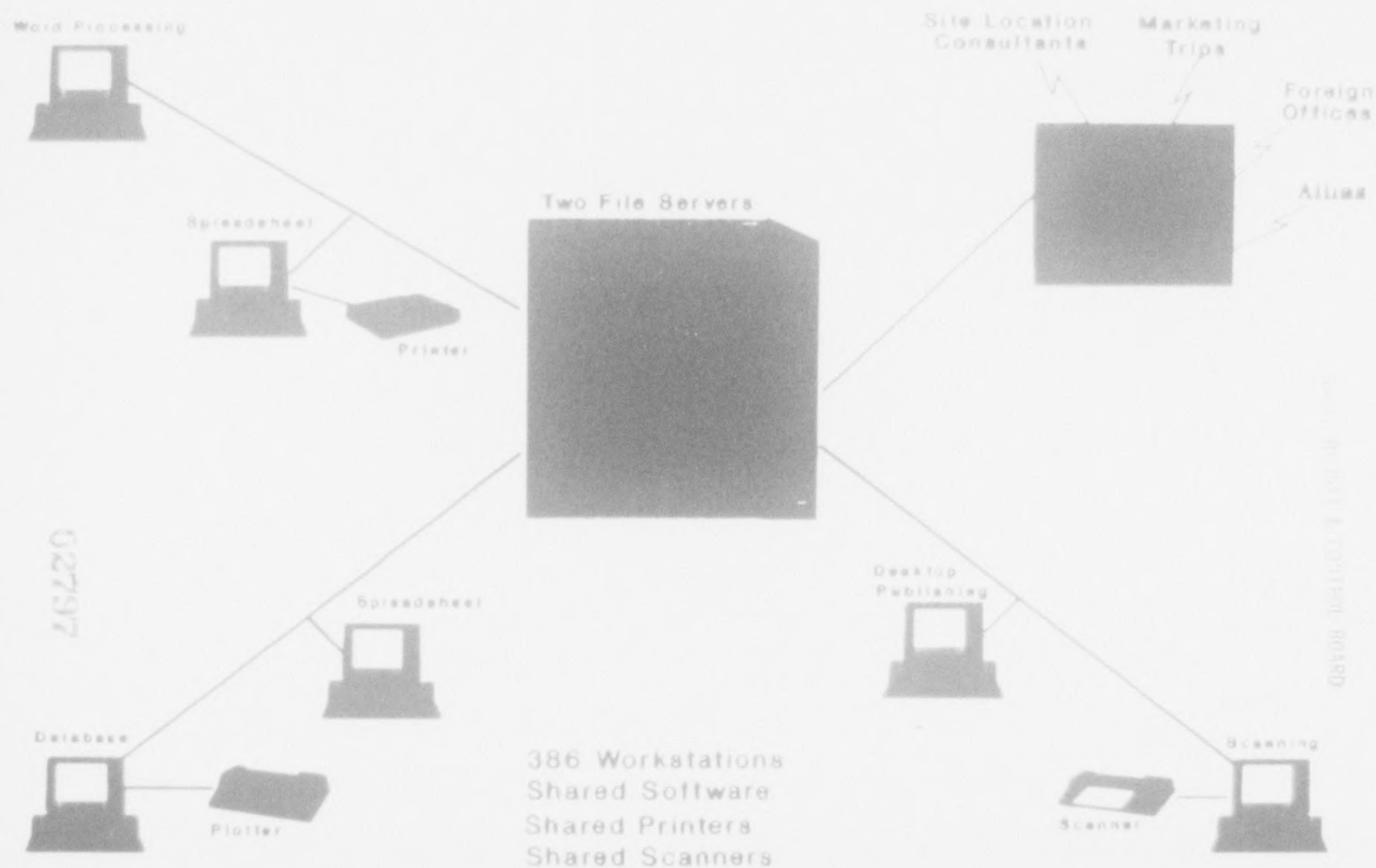
02795

# **State Development Board's Automation Plan Summary of Needs Assessment**

## **Building Competitive Advantage through Technology**

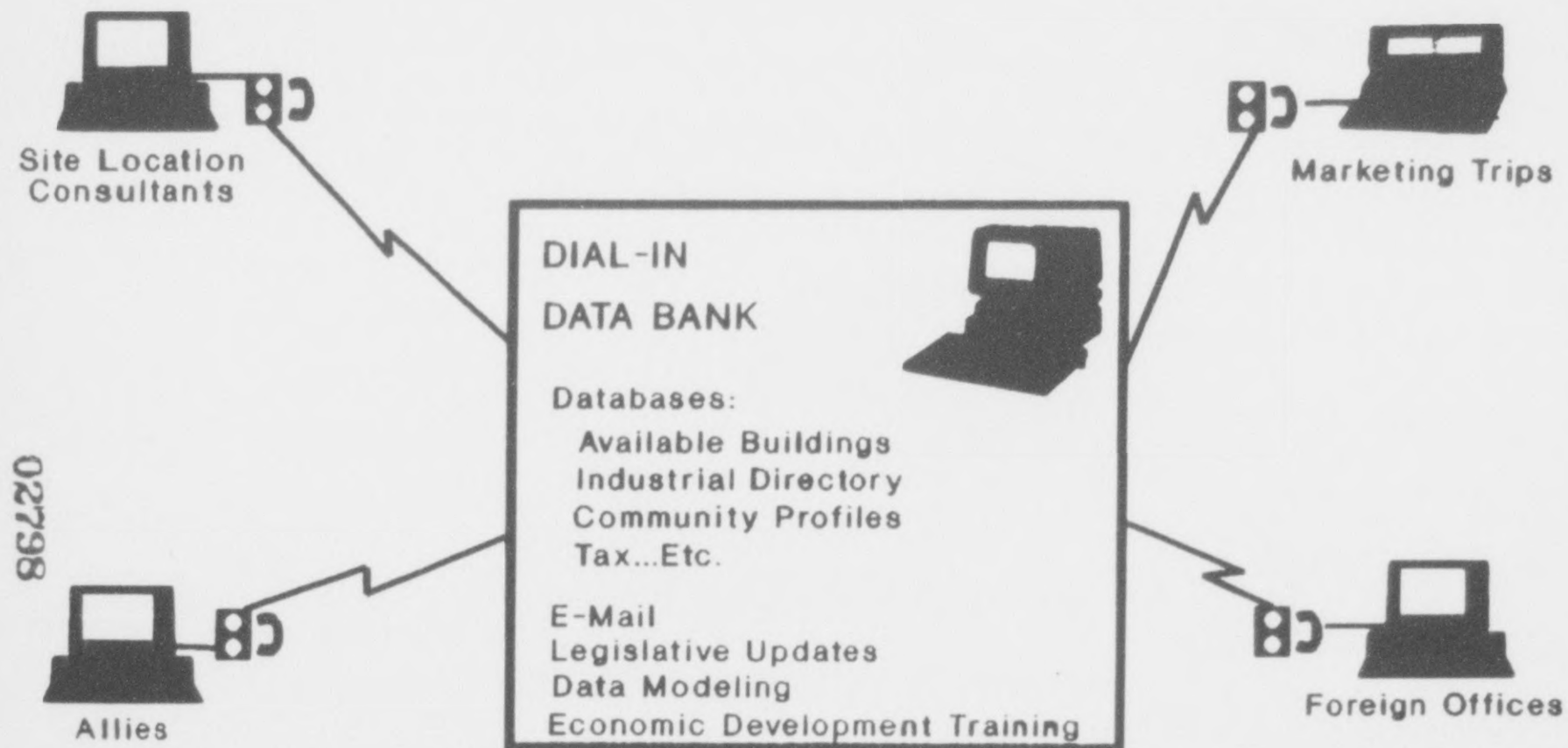
- Sophisticated project management system
- Improved management reporting systems
- Increased database development for DIAL-IN
- Increased communications
  - Electronic mail, calendaring, and scheduling
- Versatile analysis and marketing tools
  - desktop publishing
  - presentation graphics
  - video integration
  - spreadsheet and statistical software
  - easy to use query languages
- Expanded use of GIS technology
  - State-of-the-art prospect presentations

# State Development Board's Open Systems Architecture Technology





# State Development Board's Development Information Access Line - An Innovative Network (DIAL-IN)



# **Statewide Technology Assistance Program**

## **A Matching Grant Program for Economic Development Allies**

- **Competitive grants**

- Local development boards/chambers
- \$5,000 per county
- Used for purchase of computer, software, modem and printer

- **Matching grants**

- 75% grant to less developed counties
- 50% grant to moderately developed counties
- 25% grant to developed counties

- **Benefits**

- Access to state's information bank (DIAL-IN)
- Access to computer based training programs for economic development
- Increased cooperation and communication between State Development Board and allies
- Assistance to local development boards

# SOUTH CAROLINA INFRASTRUCTURE/ECONOMIC DEVELOPMENT PLANNING PROJECT GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

## Cooperating Agencies

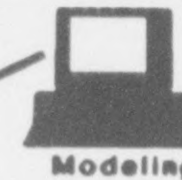
**DHPT  
DHEC**  
Land Resources  
Research & Statistics  
Water Resources  
Information Support

## STATE DEVELOPMENT BOARD



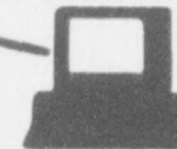
1. Infrastructure Analysis
2. Prospect Presentations
3. Strategic Planning

Strom Thurmond  
Institute (Clemson)



Modeling

Appalachian Council  
of Governments



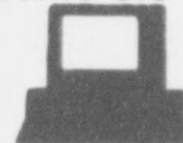
Regional GIS Center

Lexington County



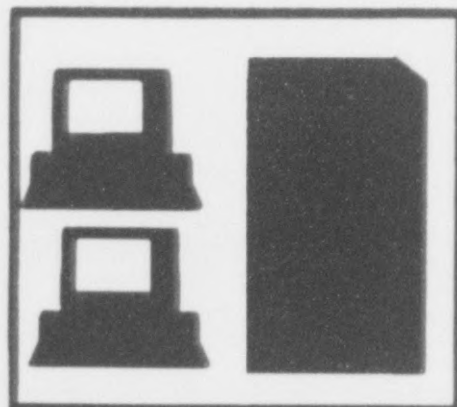
Local Ally

Prospective GIS Centers



Upper Savannah COG  
Central Midlands COG  
City of Greenville  
Others

Humanities & Social Sciences  
Computer Lab (USC)



1. Data Update & Management
2. Research
3. Training

02800

STATE BUDGET & CONTROL BOARD

SEP 6 1989

EXHIBIT

NO. 1



## **Economic Development Decision Support Program**

**Computer based tools to help local allies make sound economic development decisions based on the comparative advantages in their region.**

- **Develop competitive written proposals**
- **Develop complex prospect presentations**
- **Financial packaging**
- **Environmental checklist control**
- **Analysis of site requirements**
- **Tax burden computations**
- **Comparative cost analysis**

## JUSTIFICATION OF REQUEST

2. National Business Development - Net Requested Increase  
\$95,000

CONSULTANTS STRATEGY/IDRC PROMOTION \$75,000

All Other Expenses (Operating Funds) \$75,000

- \$50,000 - Ten consultant trips to South Carolina
- \$25,000 - Promote South Carolina through Industrial  
Development Research Council (IDRC)

OPERATIONS \$20,000

All Other Expenses (Operating Funds) \$20,000

- \$10,000 - Travel
- \$10,000 - Prospect Expense

02802

## JUSTIFICATION OF REQUEST

3. International Business Development - Net Requested Increase \$90,191

DIRECT INVESTMENT \$90,191

Personnel \$40,191

Direct Foreign Investment Manager

All Other Expenses (Operating Funds) \$50,000

\$12,500 - Travel

\$10,000 - Prospect Expense

\$ 2,500 - Education/Conference

\$25,000 - Trade Shows

02803



## JUSTIFICATION OF REQUEST

4. Finance and Administration - Net Requested Increase  
\$520,030

ADMINISTRATION \$45,030

Personnel \$45,030

Associate Director, Finance and Administration.

AGENCY SUPPORT \$155,000

Personnel \$20,000

Temporary Staffing

All Other Expenses (Operating Funds) \$135,000

\$20,000 - Freight and Telephone

\$20,000 - Postage and Photocopier

\$95,000 - Increased lease expenses

SCHOOL-BASED ENTERPRISES \$225,000

All Other Expenses (Operating Funds) \$225,000

\$225,000 - Federal funds eliminated

Schools participating increase from 14  
to 20 in FY 90- 91

TECHNOLOGY TRANSFER \$95,000

\$95,000 - Consultant Plus Expenses

Enterprise Development, Inc. of S.C. -

Establish and implement program to move  
technology from research labs to  
marketplace.

02804

## JUSTIFICATION OF REQUEST

### 5. Special Programs - Net Requested Increase \$78,586

#### AVAILABLE SITES AND BUILDINGS \$39,293

Personnel \$33,293

Associate Manager, Available Buildings and Sites

All Other Expenses (Operating Funds) \$6,000

\$2,000 - Travel

\$2,000 - Education/Conference

\$2,000 - Prospect Expense

#### RURAL AND COMMUNITY DEVELOPMENT \$39,293

Personnel \$33,293

Associate Manager, Rural Economic Development

All Other Expenses (Operating Funds) \$6,000

\$2,000 - Travel

\$2,000 - Education/Conference

\$2,000 - Prospect Expense

02805

## JUSTIFICATION OF REQUEST

### 6. Public Affairs - Net Requested Increase \$205,000

#### ADMINISTRATION \$60,000

\$40,000 - National/International PR Contract  
\$20,000 - Travel

#### SPECIAL PROJECTS \$145,000

\$35,000 - International Weekend  
\$10,000 - Heritage  
\$10,000 - Spoleto  
\$25,000 - "Showcase South Carolina"  
\$15,000 - National Trade Shows (3)  
\$50,000 - Statewide Business and Industry Week



## JUSTIFICATION OF REQUEST

7. Communications and Advertising - Net Requested Increase  
\$611,120

ADMINISTRATION \$76,859

All Other Expenses (Operating Funds) \$76,859

\$25,359 - Booth Displays

\$51,500 - Translation Services

SOUTH CAROLINA FILM OFFICE \$65,209

Personnel \$28,709

Associate Manager, Film Office

All Other Expenses (Operating Funds) \$36,500

\$15,500 - Train Location Scouts

\$21,000 - Location Scout Expenses

PRINTING, BINDING AND ADVERTISING \$469,052

\$200,000 - Prospect Marketing Materials

\$ 81,342 - Direct Mail Campaign

\$ 55,532 - Advertising to support Direct Mail  
Campaign

\$105,857 - Business Publication Advertising

\$ 46,321 - Film Office Advertising

## JUSTIFICATION OF REQUEST

### 8. Executive and Board - Net Requested Increase \$20,000

#### EXECUTIVE

All Other Expenses (Operating Funds) \$20,000

- \$ 5,000 - Travel
- \$10,000 - Prospect Expense
- \$ 5,000 - Education/Conference

## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

1. Research and Information Resources - Net Requested Increase - \$682,950

### INFORMATION SYSTEMS \$192,950

\$168,000 - Workstations (45)  
\$ 8,970 - Scanners (6)  
\$ 1,980 - Text Scanning Software (4)  
\$ 14,000 - Laser Printers (4)

### COMPUTER-BASED ECONOMIC DEVELOPMENT TRAINING PROGRAM \$200,000

\$200,000 - Establish computer training courses throughout S.C. for economic development professionals - Implement via consultant.

### ECONOMIC DEVELOPMENT/GIS PROGRAM \$60,000

\$40,000 - Graphics Workstation and Software  
\$20,000 - Large 67" Diagonal Screen

### STATEWIDE TECHNOLOGY DEVELOPMENT PROGRAM \$230,000

Establish and Implement Grant Program for Counties -  
Dial-In Program  
(46 x \$5,000 = \$230,000)



## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

2. Communications and Advertising - Net Requested Increase  
\$428,138

ADMINISTRATION \$78,138

Video Prospect Recruitment Tool

PRINTING, BINDING AND ADVERTISING \$350,000

Promotional Brochures - New and Old

02810

# EXHIBIT

SEP 6 1989      NO. 1

STATE BUDGET & CONTROL BOARD

## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

3. International Business Development - Net Requested  
Increase \$60,000

\$60,000 - Display space Expo '92 - Seville, Spain

02811

## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

### 4. Special Programs - Net Requested Increase \$200,000

Promotional Materials Grants and Assistance Program

02812



## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

5. Public Affairs - Net Requested Increase \$100,000

SPECIAL PROJECTS \$100,000

Southeast-US Korea Conference, Charleston, 1990

02813

## JUSTIFICATION OF REQUEST NONRECURRING FUNDS

6. Finance and Administration - Net Requested Increase  
\$10,000

Enterprise Development Conferences (2)

02814

EDUCATION EXCELLENCE  
FOR  
ECONOMIC DEVELOPMENT

EXHIBIT

SEP 6 1989

NCL 1

STATE BUDGET & CONTROL BOARD

Purpose

Attract and maintain nationally/internationally recognized professors and scholars for furthering the economic development efforts of South Carolina, particularly in regards to business, applied research, technology transfer, entrepreneurship and information technology.

Administration

Committee created with following representation:

Governor Carroll A. Campbell, Jr. or designee\*

Gubernatorial Appointee

Coordinating Council Chairman

Higher Education

Research Authority

Ways/Means

Senate Finance

Major Universities (1 representative)\*\*

Other Colleges (1 representative)\*\*

\*Governor selects the Chairman of this Committee

\*\*Representative must be Dean of a Professional School

Committee Responsibilities:

- Establish Criteria
  - Areas of eligibility (scope)
  - Monetary support (allocation depending chairs, supplements, etc.)
- Guidelines (define the "life" of the award)
- Accountability
- Administration of fund
- Seek applications and screen
- Determine awards

02815



The State Development Board will manage the fund in cooperation with the Treasurer's Office who will handle the investments.

Mechanism

Legislation: Proviso establishing Education Excellence for Economic Development Trust Fund.

TRUST FUND

YEAR 1      \$3 Million State Appropriated Monies

Awards

- Endowed Chairs  
    (Funding taken from portion of the principal)
- Salary Supplements  
    (Funding Taken from earnings)

YEAR 2      Additional \$3 Million State Appropriated Monies

Awards

- Endowed Chairs  
    (Funding taken from portion of the principal)
- Salary Supplements  
    (Funding taken from earnings)

YEAR 3      Additional \$4 Million State Appropriated Monies

Awards

- Endowed Chairs  
    (Funding taken from portion of the principal)
- Salary Supplements  
    (Funding taken from earnings)

FUTURE YEARS

- Built the principal base to a sufficient funding level to sustain an annual \$2 Million expenditure with supplemental capital injections of approximately \$1.6 Million per year.

02816

**T H E      E N D**

02817