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S.C. Dept. of Natural
Resources Annual
Accountability Report
1994/95

MISSION STATEMENT

The South Carolina Department of Natural Resources is the advocate for and steward of the state's natural resources. The Department of Natural Resources develops and implements policies and programs for the conservation, management, utilization and protection of the state's natural resources based upon scientifically sound resource assessment and monitoring, applied research, technology transfer, comprehensive planning, public education, technical assistance and constituent involvement. The Department of Natural Resources is pro-active in protecting the state's natural resources for use and enjoyment by future generations of South Carolinians.

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STATE DOCUMENTS

PROGRAM - CEC-Education

Program Goal:

Provide programs, training, and staff development to educators, schools, youth organizations, and other audiences interested in the conservation and wise use of natural resources.

Program Objective:

To provide 225-275 wildlife education programs in the state's school districts. To instruct 2,000 - 3,000 educators in six hour Project WILD workshops. To continue joint sponsorship of Camp Wildwood and maintain 95% capacity. To support teachers in their conservation efforts through 20-30 Action Grants.

Performance Measures:

Workload Indicators:

- 1,543 educators trained in 94 Project WILD workshops
- 51,125 students were provided programs in 250 locations
- 125 students attended Camp Wildwood

Efficiency Measures:

- \$10.89 cost to train each per 6 hour workshop
- \$1.19 cost to educate each student attending a wildlife education program in their school
- \$161.60 for each camper to attend Camp Wildwood

Effectiveness Measures:

	<u>1993-94</u>	<u>1994-95</u>
- Number of workshops held to train educators.	94	96
- Number of locations where students received program.	259	266
- Capacity to which Camp Wildwood was filled	100%	100%

PROGRAM: Land Resources and Conservation Districts

Program Goal:

The goal of the Land Resources and Conservation Districts is to sustain and enhance South Carolina's land and related natural resources through grassroots involvement, land resource planning information and analysis, technical assistance, technology transfer, education, land resource policy development and professional registration.

Program Objectives:

- To sustain and enhance South Carolina's land and related natural resources.
- Increase the public's interest in and understanding of the need for land and related natural resource conservation and stewardship.
- Strengthen the role of conservation districts as the focal point for grassroots land and related natural resource conservation.
- Coordinate efforts to address and resolve land and related natural resource issues and policy within the state.
- Provide land users and land professionals with conservation technology and technical assistance to sustain and enhance South Carolina's land and related natural resources.
- Promote efforts to achieve effective watershed management.
- Protect the health, safety, and welfare of the public by providing registration of landscape architects and soil classifiers.

Performance Measures:

Workload Indicators:

	FY 93/94	FY 94/95
- Number of conferences, workshops, clinics and field demonstrations	122	140
- Number of land resource planning and management projects assisted	119	145
- Number of units of conservation equipment provided to conservation districts and land users	79	79
- Number of landscape architects/firms and soil classifiers registered	461	513

Efficiency Measures:

- Ratio of state funds to non-state funds and in-kind services	1:11.2	1:11.5
- Cost per acre under conservation plan	\$0.16	\$0.16
- Ratio of staff to clients assisted	1:1,140	1:1,458

Effectiveness Measures:

- Percent of the total cropland and pasture with adequate soil and water conservation management	69.3	69.3
- Acres under conservation plans	6.6 million	6.65 million
- Percent of identified flood hazard communities with flood insurance ordinances	82	84
- Percent of flood insurance policy holders receiving policy premium discounts through Community Rating System	65	79
- Number of partnerships with agencies and organizations	145	475
- Percent of landscape architect and soil classifier registration complaints resolved	100	100

PROGRAM: Nongame and Heritage Trust

Program Goal:

Maintain all of South Carolina's native plants and animals in their natural habitats and preserve the archaeological record on the land.

Program Objectives:

- Service requests for data on endangered species and critical ecosystems, and make technical consultations as required
- Dedicate at least five new Heritage Preserves and additions
- Carry out research, survey, and management projects on at least 20 high-priority species and ecosystems
- Resolve wildlife assistance calls as required
- Maintain habitats and facilities as required on the system of Heritage Preserves, including 15 high-priority projects

Performance Measures:

Workload Indicators:

- Serviced over 300 requests for data on endangered species and reviewed over 900 environmental permits
- Made 132 technical consultations and presentations
- 29 individual research, survey, and management projects were in progress during the year
- 3,975 wildlife assistance calls were resolved
- 11 habitat management and facilities improvement projects carried out on Heritage Preserves

Efficiency Measures:

- Land acquisition costs averaged \$323 per acre
- Cost per wildlife assistance call: \$16.00
- Average cost of research, survey, or management projects: \$4,000 per project.

Effectiveness Measures:

	<u>1993-94</u>	<u>1994-95</u>
Contributions to Check for Wildlife	22,017	16,000
Average per contribution	\$0.06	\$6.66
- Rare habitat elements protected on new land acquisitions	75 9	77 13
- Major technical papers and reports delivered	17	12
- Two breeding songbird species new to South Carolina were documented		
- Wildlife diversity field offices were established in Rock Hill and the Webb Wildlife Center		

PROGRAM: Game

Program Goal:

Provide the best possible opportunities for the sportsmen of South Carolina while ensuring the well being of all wildlife species.

Program Objectives:

- To maintain 1 million+ acres in the Wildlife Management Area Program for public use
- To provide an annual deer harvest of 100,000 deer and 8,000 wild turkey annually
- To provide technical information to 2,000+ landowners annually
- To provide opportunities for public drawn hunts for 1,500 individuals annually
- To provide presentations to the public on 900 occasions annually
- To provide technical guidance to 2,000+ landowners annually

Performance Measures:

Workload Indicators:

- 1,314,949 acres maintained in Wildlife Management Area Program
- Over 5,260,000 man-days hunting provided
- 7,456 hunters applied for slots on public drawn hunts
- 2,100 requests for technical information
- 69,079 antlerless deer tags issued to 2,413 cooperators
- 42,858 Piedmont deer tags issued to 23,017 hunters
- 377 presentations made to audiences of 17,010

Efficiency Measures:

- \$2.15/acre payment for corporate WMA land
- \$0.38/acre payment for Forest Service WMA
- \$0.92/acre to lease public dove fields
- \$21.45 per 1000 to produce lespedeza, revenue \$25/1000

Effectiveness Measures:

- Total acreage in public hunting lands (WMA's) decreased 1% from 93-94
- Bear harvest decreased 2% on WMA's and 3% statewide from 93-94
- Turkey harvest increased 24% statewide from 93-94
- The number of opportunities for the public for state drawn hunts decreased by 4% from 93-94
- The number of hunters applying for public hunts decreased 4% from 93-94

Program: Freshwater Fisheries

Program Goal:

To provide the sportsmen and citizens of South Carolina with those services required to protect, conserve and enhance the state's freshwater fishery resource.

Program Objective:

- Produce 5 million striped bass and hybrid fingerlings for stocking public waters
- Maintain 15 state fishing lakes for use by the angling public
- Stock 500,000 trout into suitable public waters
- Provide management assistance to 1,000 private pond owners
- Investigate fish kills and review environmental permits as necessary
- Construct two boat ramps at state fishing lakes to improve public access
- Monitor the fishery resources in the states major reservoirs

Performance Measures:

Workload Indicators:

- 2,136 pond management consultation contacts made
- 11.3 million fingerling fish produced for stocking in public waters
- 1,170 environmental reviews performed
- Conducted 92 fish kill investigations
- Maintained 155 fish concentration areas in public waters

Effectiveness Measures:

- Pond management consultations were performed at a cost of \$81 per inquiry
- Over 11.3 million fingerling game fish were stocked in South Carolina's public waters at a cost of approximately \$0.07 each
- The section reviewed 113 environmental permit applications and issued approximately 516 comments. Reviews were performed at an average cost of \$552 each.
- Fish kill investigations were conducted in public and private waters at an average cost of \$284 per investigation
- Fish concentration areas in public waters were maintained at a cost of \$605 per site

Efficiency Measures:

	<u>1993-94</u>	<u>1994-95</u>
Cost of state lake maintenance per acre	\$204	\$211
Costs associated with pond management assistance	\$114	\$81
Cost of producing fingerling largemouth bass, bluegill and redear sunfish	\$0.07	\$0.07
Environmental reviews performed	705	1,170
Number of public fishing areas managed under state lakes program	12	15
(acres increased in state lakes program)	1,385	1,385

PROGRAM: Hunter Education

Program Goal:

To provide the administrative and logistical support necessary to conduct a statewide hunter education program that is accessible to all interested individuals. Successful completion of the 10 hour course and optional live fire program should impact participants (hunters/non-hunters) in a manner that will: 1) reduce hunting and other firearms related accidents; 2) effect the performance of hunters in a manner that will reduce game violations, and enhance their ethical standards; 3) increase public awareness of the need for responsible management and utilization of our natural resources; 4) foster better relations between hunters, non-hunters and landowners to ensure continued public access to private and public lands for recreational purposes.

Program Objectives:

- To increase the number of 10 hour hunter education in response to passage of legislation requiring persons born after June 30, 1979 to complete a hunter education course before obtaining a hunting license. This legislation will take effect July 1, 1995.
- To increase the number of bowhunter education classes
- To reduce the number of firearms related hunting accidents
- To reduce the number of tree stand related hunting accidents
- To certify new volunteer instructors to replace inactive ones
- To operate shooting ranges that are safe and accessible to the public

Performance Measures:

Workload Indicators:

- 276 (10 hour) hunter education courses conducted by full-time and volunteer hunter education instructors
- 4 (10 hour) bowhunter education courses conducted
- Operate two public shooting ranges (Pickens and Spartanburg County) that support hunter education activities as needed, and provide a safe environment for recreational shooters.
- No accidents were reported during this time period.
- 129 safety/ethics talks made by hunter education and law enforcement personnel
- Conducted training that certified 105 new volunteer instructors
- 36 firearms and 4 tree stand related hunting accident investigations conducted

Efficiency Measures:

- Cost per student participating in the 10 hour hunter education course - \$5.40
- Cost per student participating in the 10 hour bowhunter education course - \$6.50
- Cost per individual participating in safety/ethics talks - \$1.00
- Cost per individual for volunteer instructor certification - \$250.00

Effectiveness Measures:

	<u>FY 93-94</u>	<u>FY 94-95</u>
Number of Students Certified in Hunter Education	9,174	9,893
Number of Students Certified in Bowhunter Education	137	81
Number of Hunter Education Courses Conducted	248	276
Number of Volunteer Instructors		
- Active	151	123
- Inactive	321	410
- New	64	105

PROGRAM: Marine Fisheries

Program Goal:

Provide the necessary research, monitoring and management of the state's marine fisheries resources to ensure sustainable use.

Program Objectives:

- To ensure compliance with the ten Atlantic States Marine Fisheries Commission fishery management plans and the three South Atlantic Fishery Management Council fishery management plans
- To assess the stock condition of three priority marine species
- To assess the feasibility of utilizing m-DNA fingerprinting technology to determine if four priority species consist of unit stocks throughout their range
- To develop new artificial fishing reefs and expand existing reef sites along the South Carolina coast.
- To redirect the public fish tag and release program to target high priority species
- To conduct the Marine Recreational Fisheries Stamp Program

Performance Measures:

Workload Indicators:

- 82 marine finfish species are now regulated by state and/or federal law
- 11 projects were conducted on priority species to assess their stock condition
- 1,600 gels processed for DNA determination
- 12 marine artificial reef projects carried out on 7 reef sites
- 13,045 tags distributed to the public
- 90,009 marine recreational fisheries stamps and 227 fishing pier and charter vessel permits issued

Efficiency Measures:

- \$4,579 average federal funds received per plan for participation in the development of fishery management plans
- \$130,000 average award per federal grant to implement stock condition assessment
- \$120,000 average cost to develop reliable and valid DNA-based methods for stock identification
- \$26,667 average investment for reef construction project
- \$2.70 average cost per fish tagged by the public
- \$6,259 annual cost to administer marine recreational fisheries stamp program representing approximately 2% of stamp revenue

Effectiveness Measures:

	<u>FY 93-94</u>	<u>FY 94-95</u>
- Regulated marine finfish species under state/federal fishery management plans	87%	85%
- Percent funding received through federal grants to carry out needed research on species of concern	45-50%	
- Number of fishery management units defined for priority species using DNA fingerprinting	4	
- Estimated participation (angler days) and economic benefit (assuming 5.8% inflation rate) associated with S.C. artificial reef usage	73,916	74,655
- Participation (number of anglers) and effectiveness of the tagging program (number of fish tagged and percent of tags used)	\$619,792 2,000 10,000 ~81%	\$665,746 2,100 8,900 68%

PROGRAM - Hydrologic Investigations and Technical Assistance

Program Goal:

To determine the availability, location, and demand for water in the state, to make this information available and provide technical assistance. To conduct feasibility studies of new and innovative techniques for the development of the state's water resources.

Program Objectives:

- To increase the quality and quantity of hydrologic data and interpretation of these data. To maintain an inventory of the availability of water within the state. To provide reports, data and technical assistance to current and prospective users of water within the state. To promote and utilize technology, methods, and procedures to promote efficient use of water.
- To prepare reports on the ground water resources of the Pee Dee and Calhoun County areas.
- To construct and instrument 4 wells which reflect changes in storage in the individual aquifers.
- To continue to operate and maintain 18 streamflow measuring stations on streams which can be used to determine the spatial and temporal availability of water in streams and lakes of the state.
- To maintain water level recorders on 14 wells in the state which indicate changes and storage within the aquifers.
- To maintain water level recorders on 14 wells in the state which indicate changes and storage within the aquifers.
- To obtain geologic cores from 4 wells and geophysical logs from 50 wells to better define the areal extent of aquifers and hydrologic characteristics of aquifers within the state.
- To measure the changes in salinity in water in 1 well at 3 depths in the upper Floridan Aquifer on Hilton Head Island.
- To assemble and digitize existing data from approximately 100 wells which show historical changes in water level in the aquifers within the state.

Performance Measures:

Workload Indicators:

- Provided geophysical log services and technical assistance to drillers, municipalities, state agencies, and the general public (70 wells; total footage logged 90,000 ft.)
- Developed drilling and coring programs to collect hydrologic, geologic, and mineralogic data to further define and evaluate the water sources.
- Maintained facilities and equipment to monitor the stage of streams and lakes and the potentiometric heads in aquifers.
- Determined hydrogeologic properties and water quality characteristics of aquifers.
- 2 reports published: "Water level measurements and potentiometric maps for 1991-1993, Beaufort, Colleton, Hampton and Jasper Counties, South Carolina with selected hydrographs for 1975-1993." Open File Report 43, by Constance Gawne; "Aquifer Storage Recovery, Myrtle Beach, South Carolina" by Joffre E. Castro. Technical paper presented at the AWRA Second International Conference on Ground Water Ecology, March 27-30, 1994, Atlanta, Georgia.

Efficiency Measures:

- | | <u>FY 93-94</u> | <u>FY 94-95</u> |
|---|-----------------|-----------------|
| - Cost to maintain facilities for determination of amounts and variability of water in: | | |
| streams/site | \$8,000 | \$8,000 |
| lakes/site | \$3,750 | \$3,000 |
| aquifers/site | \$2,600 | \$2,600 |
| - Cost per response for technical assistance: \$32.40/response | | |
| - Cost per linear foot of geophysical logs obtained: \$0.50/foot | | |
| - Cost to study two sites in the Grand Strand area to determine the suitability of storage of fresh water in the Black Creek Aquifer: \$85,000 per site (state and local funds) | | |
| - Cost to determine 76 rainfall/temperature/runoff characteristics for a 10 year, two year and one day period for selected sites in the state: \$99.10 per site | | |
| - Cost to determine the flooding potential for the Congaree River at Columbia: \$9,415 per site | | |
| - Cost to review environmental permits: \$51.40 per permit | | |
| - Cost to evaluate an optimization model for use in optimizing reservoir operation within the state: \$7,350 per model and evaluation | | |

- Cost to drill four wells at a cluster site in Allendale County (3,032 total feet) for measurement of water levels in the Black Creek, Middendorf and Cape Fear Aquifers: \$61.00 per foot
- Cost to construct and develop 24 wells to determine the storage and yield of wells in the shallow aquifer system in the Hilton Head area: \$526 per well
- Cost to add 1668 records to the well inventory file: \$9.00 per well record

Effectiveness Measures:

- Continued the hydrologic interpretation and establishment of a permanent multi-observation well network in Aiken, Allendale and Barnwell Counties. Completed selection of remaining Department of Energy drill sites. Four wells were drilled at the C-7 Site (Allendale).
- Completed a study to determine the potentiometric surface of the Floridan Aquifer of the Low Country Area of South Carolina for the period 1991-1993.
- Continued a study of the water supply potential of the Middle Floridan Aquifer, Hilton Head Island and vicinity, South Carolina.
- Established a water level measurement program for the Hilton Head shallow aquifer system.
- Continued a study of the Floridan Aquifer in Charleston, Berkeley and Dorchester Counties - data collected in 1992-93.
- Obtained and evaluated data from the water systems within the Trident area; potentiometric maps were constructed and digitized and a draft is underway.
- Continued a study of the hydrogeology of Greenville County and the Piedmont. A report is in preparation which includes a listing of approximately 2,800 wells in the area - data collected in 92-93.
- Provided information to implement the Drought Response Act of 1985.
- Continued digitizing historic water levels in wells in South Carolina. Approximately 100 wells were converted to a digital format.
- Continued analyses of water level and streamflow networks and of groundwater storage throughout the state - 18 streamflow stations were maintained in 92-93, 43 water level recorders were maintained on wells in 1992-93.
- Continued a study of the effects of irrigation from ponds and shallow aquifers on Wadmalaw Island, South Carolina. Two 4-inch and 25 2-inch diameter wells were constructed.
- Continued a feasibility study of Aquifer Storage and Recovery in Myrtle Beach. A second Black Creek test site has been established. The injection rate has been increased to 400 gallons per minute. Completed phase II at Myrtle Beach site in 92-93.