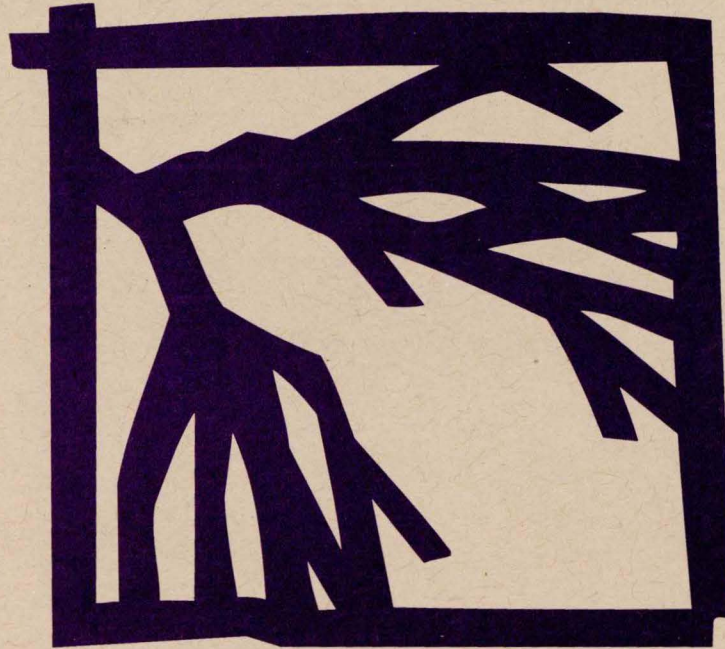


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Annual Report



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Iowa Department
of Natural Resources

Larry J. Wilson, Director

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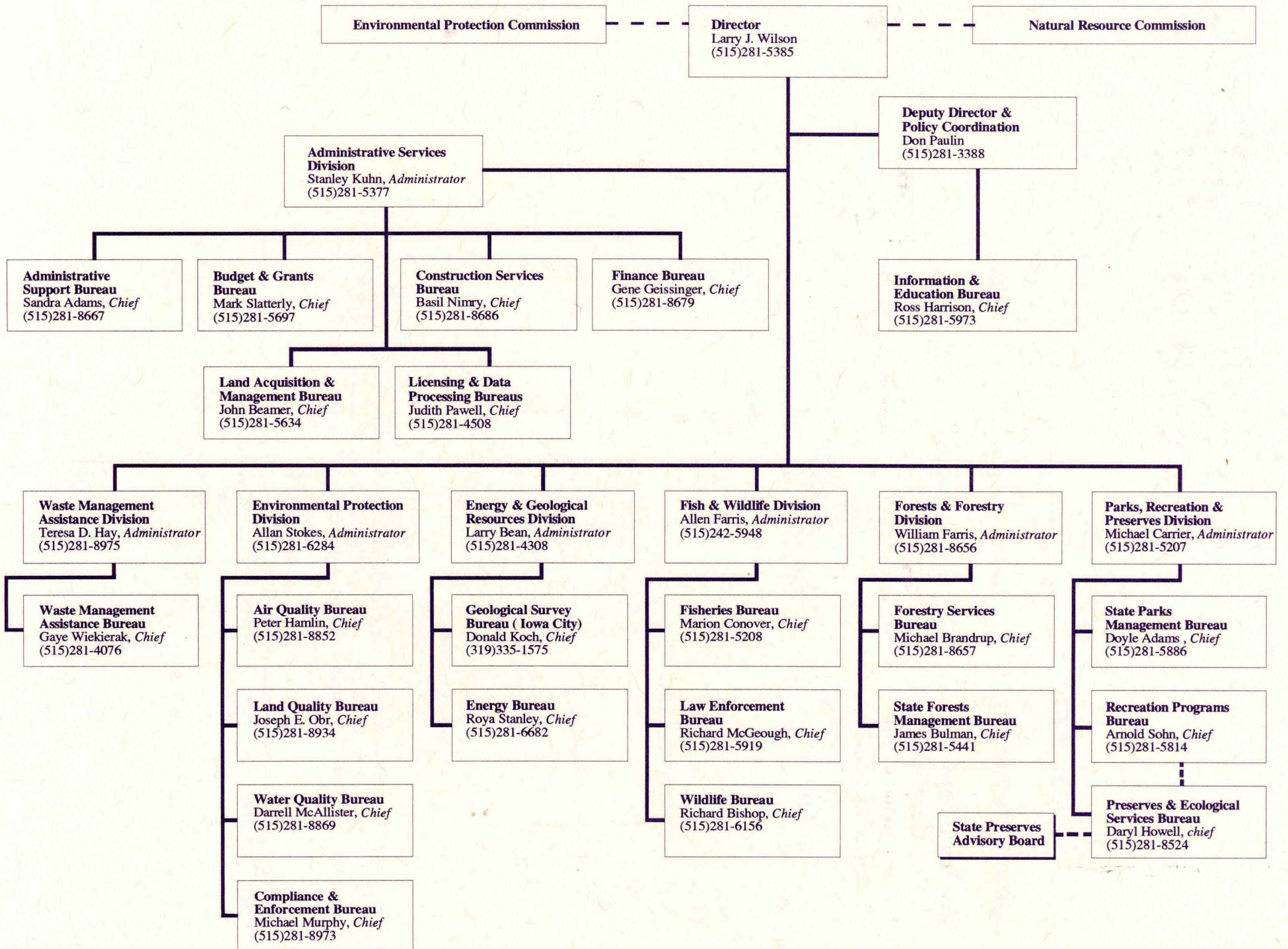
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Director's Message



In FY 1994, the devastation of the floods of '93 became more apparent. Flood plain woodlands that had remained underwater too long took the biggest beating. With the cost-share funding from the Federal Emergency Management Agency, we were able to restore public facilities in most of the parks, wildlife areas and fishing access points around the state. Most of these facilities have been well maintained throughout the years, making the cost of restoration much less than expected.

As nature's way of occasionally cleaning out the system, the floods did have a positive impact on fish populations throughout the state. New habitats were carved out; and for a period of time, the aquatic system had an over-abundant supply of space and food. Fish growth through 1993 and 1994 was very good. We had expected a fairly dismal pheasant season in the fall of 1993. As it turned out, many pheasant hunters stayed home, but those who did hunt found that pheasant populations suffered very little from the floods. In fact, the fall of 1993, had one of the highest pheasant harvests per hunter in recent years.

The department is continuing to increase its emphasis on the now, well-established trend of confined feeding operations for hogs, growing in number and individual size. The economics of these operations is the driving force behind their success, but concern for nearby ground and surface water quality and odor, due to the associated wastes, are increasing along with the trend. New legislation on manure management is on the horizon and DNR has begun monitoring programs to check for possible movement of hog wastes into our water.

Non-point source pollution, mostly from agricultural operations, is being addressed in more funding for demonstration and education (from U.S. EPA's Clean Water Act) and regulation.

The Resource Enhancement and Protection (REAP) program continued providing funds (\$7.6 million appropriated) for city, county, state and private conservation work around Iowa. Additional funding in future years is anticipated due to passage of a new law that provides for a REAP license plate. A design is currently in progress and more than \$700,000 per year is expected to be generated from sales of the plate.

Environment

Water Quality

Water quality monitoring data and assessments for 1992 and 1993 are summarized in the 1994 Water Quality in Iowa report prepared by the DNR. The report describes the status of water quality in Iowa and the extent to which state waters meet the federal Clean Water Act goals. The report includes information on groundwater quality and on water pollution control programs.

Data collected during 1992 and 1993 were used to assess whether Iowa's waters fully supported their designated uses. Designated uses include one or more of the following: aquatic life, recreation, and drinking water. Although Iowa has approximately 72,000 miles of perennial and intermittent streams, less than 10 percent of those stream miles were assessed, due to the lack of data for most small and medium size streams. Therefore, the stream assessment data cannot be considered representative of all streams in the state. Approximately two-thirds of the more than 161,000 acres of ponds, lakes and reservoirs and their associated wetlands were assessed.

The following are several points from the report's findings:

- Forty-three percent of the stream miles assessed supported their designated uses but are in danger of being degraded to the point where they would not. Designated uses are partially supported on 56 percent of the stream miles assessed, while those uses are not supported on only 1 percent of the stream miles assessed.
- Sixty-four percent of the lake acres assessed fully supported their designated uses but two-thirds of those are threatened. About 26 percent of the lake acres were assessed as partially supporting their designated uses while ten percent did not.
- An assessment of 115 large, state, county, or city-owned lakes showed that about one-half fully supported their designated uses.
- Non-point source pollution was identified as the primary reason waterbodies do not support their designated uses. Non-point source pollutants of concern include sediment and plant nutrients from agricultural sources. Modification of stream habitat (e.g., channel changes) was also identified as having a significant impact on stream uses. Point source pollution was identified as causing use impairment in approximately five percent of the stream miles assessed.
- The fish consumption advisory established in 1989 for bottom feeding fish in the Des Moines River at Des Moines was lifted in 1993. Fish consumption advisories for two locations (Cedar Lake in Cedar Rapids and the Mississippi River near Davenport) remain in effect due to high levels of chlordane and polychlorinated biphenyls (PCBs) found in bottom-feeding fish in those locations.
- Eighteen fish kills were reported to the DNR during 1992 and 1993 but only six were determined to be caused directly by human activity. The remainder were caused by naturally occurring conditions such as low dissolved oxygen or high water temperatures. Improper disposal of animal wastes was the most common source of pollutants causing fish kills. The number of fish kills reported was down significantly from previ-

ous years, likely due to high stream flows in 1992 and 1993 which diluted pollutants and provided sufficient dissolved oxygen and lower water temperatures.

- Of 900 miles of streams monitored for toxic parameters, approximately five percent of those stream miles had elevated levels of toxic compounds. Toxic parameters occurring at elevated levels included chlordane, PCBs and atrazine.
- Although the data show pesticides are entering Iowa's surface and groundwater, levels of pesticides typically do not exceed drinking water maximum contaminant levels or health advisory levels for sustained periods. (The DNR does not routinely monitor for pesticides due to a lack of resources and the long-term impact of pesticides on all organisms, including humans, are not well understood.
- Exotic species such as the zebra mussel, Eurasian milfoil and purple loosestrife could have significant impacts on the beneficial uses of Iowa waters in the future.

The 1994 report, also known as the Section 305(b) Report, is the 10th biennial report prepared since 1975 for the State of Iowa and is required by the federal Clean Water Act. Section 305(b) reports prepared by states are combined into a single national water quality report by the Environmental Protection Agency and transmitted to Congress.

Water Supply

In 1994 the Iowa General Assembly passed a "fee bill" which allows DNR to maintain program primacy for the drinking water program. The bill requires public water supply utilities to pay the DNR revenues of \$475,000 in FY 1995, \$700,000 in FY 1996, \$900,000 in FY 1997, and \$1,200,000 in each subsequent fiscal year. The money is to be deposited in a dedicated account which can be used only for the drinking water program. The General Assembly passed the bill at the urging of a coalition of water utilities and other affected organizations. The fee bill was necessary to keep the DNR within the rapidly-expanding federal regulations.

Wastewater Treatment

In 1991, the DNR implemented the State Revolving Fund (SRF), a low-interest loan program, to replace the Construction Grants program. The Construction Grants program had assisted communities in constructing wastewater treatment facilities. In FY94, a total of 11 loans were awarded to 10 communities for a total of \$18,827,000 (see listing on page 6). The interest rate to these communities varied from 3.74 percent to 4.62 percent. Since the beginning of the SRF program, there have been 55 loans awarded to 44 communities for a total of \$91,525,000.

- During FY94, 87 percent of the municipal and 94 percent of the industrial wastewater facilities with National Pollution Discharge Elimination System (NPDES) permits were in compliance with their effluent limits.

Revised Loan Listing

Community	Loan Amount
Ankeny	\$1,785,000
Carlisle	2,084,000
Clinton	2,755,000
Coralville	2,645,000
Denmark S.S.D.	500,000
Minburn	496,000
Osceola	1,880,000
Oskaloosa	1,515,000
Perry	3,339,000
Tama	1,828,000
TOTAL	\$18,927,000

Underground Storage Tanks

The underground storage tank regulations continued to have an impact on the discovery of contamination, and the closure of older tank systems. The number of reported leaking underground storage tanks totaled 4,467. Six-hundred and forty-two of the sites have completed cleanup.

At the end of FY93, there were approximately 12,181 active regulated tanks on 4,971 sites. This is a decrease of 1,143 tanks over the past year. During the same period, approximately 1,472 tanks were removed. About 17,993 tanks have been removed since 1988, the year federal regulations went into effect.

By the end of 1993, all UST sites were required to have leak detection in place, and be able to show financial responsibility for any release that causes contamination.

Development was started on a program to certify laboratories doing UST analytical work. This should be completed by the end of 1994.

Public Reports

Complaints regarding environmental hazards or violations continued at the high rate seen in recent years, totaling 1,915 for 1993. Increased public awareness and concern about Iowa's environment may be part of the reason for the high number of complaints. Water pollution and improper solid waste disposal were the most frequent reports. Complaints also included dust problems, tainted water supplies, odors, toxic air pollutants and hazardous materials. Investigations are made into each complaint and, if found valid, result in actions to eliminate the problem.

Geological Survey

Iowa's pork industry continues to follow the national trend of hog production by developing larger confinement facilities. During FY94, the DNR issued permits for 166 new facilities. The manure produced at most of these operations is stored in earthen basins or lagoons prior to field application. Although conventional wisdom suggests that manure solids act to seal the sides and bottoms of these storage structures, concerns have been raised over the potential for containment leakage and the pollution of groundwater. To address these concerns, the DNR has installed monitoring wells at four active storage facilities. Water levels and water quality in these wells will be monitored monthly for three years to determine if typical earthen-manure storage facilities allow any measurable leakage of contaminants. The sites being monitored were chosen to represent a variety of soil and surficial geologic conditions, and are located in Hancock, Linn, Pottawattamie, and Union counties. The structures are typical of many recently constructed in Iowa, and were designed to handle the wastes of hog populations of 900 head at the smallest operation to 4,500 head at the largest.

Geological Mapping. Through the National Geologic Mapping Act of 1992, the U.S. Geological Survey is supporting surficial materials geologic mapping of 7.5 minute topographic quadrangles (a: 24,000 scale) in Iowa and 34 other states. During FY94, geologic maps were completed for the Letts and the Blanchard Island Quadrangles in the Mississippi River Valley, and as directed by a statewide Geologic Mapping Advisory Panel, a three-year program to map the Cedar Rapids metropolitan area in Linn County was begun. The United States has a large unmet demand for detailed surficial geologic maps that local government agencies and other users can apply to make well-informed, landuse planning decisions. Local government units in Linn County are sharing part of the cost of this work.

Graphic Information System. Inter-agency cooperation and public access to information are important elements of the DNR's GIS program. During FY94, the Natural Resources Geographic Information System Library of databases became available via Internet. Hundreds of users, including government, private and educational users have had direct access to GIS databases created and managed for DNR use. The DNR is proactively promoting inter-agency cooperation on GIS issues. A cooperative arrangement with the State Library and the U.S. Geological Survey may give all Internet users the capability to access databases maintained at many Iowa agencies. The Iowa Geological Information Council is organizing to promote inter-agency coordination of GIS technology among local, state, and federal agencies in Iowa. Such cooperation, combined with improved digital communication, could make digital county soil maps available to all DNR staff in the next year and could make current street information available for most Iowa communities in following years. GIS technology is a technology tailored to promote cooperation and to break down traditional barriers to inter-agency, as well as intra-agency cooperation.

Waste Management Assistance

Recycling programs continued to experience healthy growth in Iowa

over the past year, with more than 480 curbside recycling programs and more than 270 drop-off programs in Iowa. In the April 1994 issue of Biocycle, Iowa was ranked fifth in the country in the number of curbside programs.

Waste Management Assistance Division co-sponsored (with the Iowa Recycling Association) the Third Annual Iowa Recycling Conference in late September. The State of Iowa capitol complex recycles mixed office paper, cardboard, pallets and scrap metal. Approximately 560 tons of mixed office paper was collected in FY94.

There are more than 800 used oil collection sites in Iowa for do-it-yourself oil changers.

Recycling Directories. The June 1994 Iowa Recycling issue expanded the listings to 24 commodities, up from 13, and includes national trade associations, state and local agencies, and Iowa equipment vendors. A special feature of the 1994 directory is the "Recycled Products Guide." Primarily focused on Iowa companies, this section features manufacturers and distributors of a number of recycled content products.

"Buy Recycled" Campaigns. In conjunction with the Environmental Defense Fund (EDF) and the Advertising Professionals of Des Moines, WMAD introduced a "Buy Recycled" multi-media advertising campaign to Iowa consumers in February 1994. Business and industry campaigns are currently going through the preliminary stages.

Pollution Prevention. The Waste Reduction Assistance Program (WRAP) assisted 26 organizations in FY94, and began a concerted effort to serve state and local institutions in addition to business and industry.

The WRAP program is comprised of 12 senior industry professionals. Acting as consultants, they provide technical assistance. WRAP has assisted a total of 109 facilities since beginning in FY90, and has held 42 pollution prevention workshops for clients. To date, it is estimated that if clients implement only 20 percent of the ideas identified or confirmed by WRAP, the recurring annual cost savings will be from \$45 to \$50 million, and the waste reduced or recycled will total many tens of thousands of tons each year. A second grant was received from the EPA to help WRAP expand training for the senior team and expand services.

Solid Waste Planning. Every city, county and private agency operating a sanitary disposal project in Iowa must prepare a Solid Waste Comprehensive Plan. Part I of the plan must indicate how communities will meet Iowa's waste reduction goals of 25 percent by 1994, and 50 percent by 2000, based on the amount of waste landfilled in 1988. These goals help protect Iowa's groundwater and soil from leachate contamination, extend the life of Iowa's landfills and promote the reduction of waste at the source and recycling. During the year, 35 plans, Part I, were approved by the DNR. A total of 160 new plans have been received by the DNR since 1988; approved plans total 133.

Household Hazardous Materials. Collections were organized to receive flood-damaged household hazardous materials (HHMs) in 11 of the counties that experienced the worst flood damage. A total of 50,622 pounds of flood-damaged HHMs were collected from 832 households, with the cooperation of EPA and FEMA.

Toxic Cleanup Days (TCD) were conducted in 21 counties to assist urban and rural households in the management and proper disposal of household hazardous waste. At these events 5,130 households brought 185,757 pounds for proper disposal. The DNR conducted an agricultural pesticide collection in conjunction with the Marshall County Toxic Cleanup Day. Funding for the event was provided through a grant from the

EPA and obtained by the Iowa Department of Agriculture and Land Stewardship. At this special collection, 9,015 pounds of unusable pesticides were collected from 11 participants.

A project to increase awareness of the Retailers consumer education program was initiated among several chapters of the League of Women Voters of Iowa. Retailers who sell household hazardous materials (HHMs) are required to obtain a permit and participate in the consumer education program, which is intended to raise consumer awareness about HHMs. The project will provide workshops for retailers and the public, and conduct surveys of stores before and after the workshops to determine levels of compliance with the retailer's program. Results will be available in September of FY95.

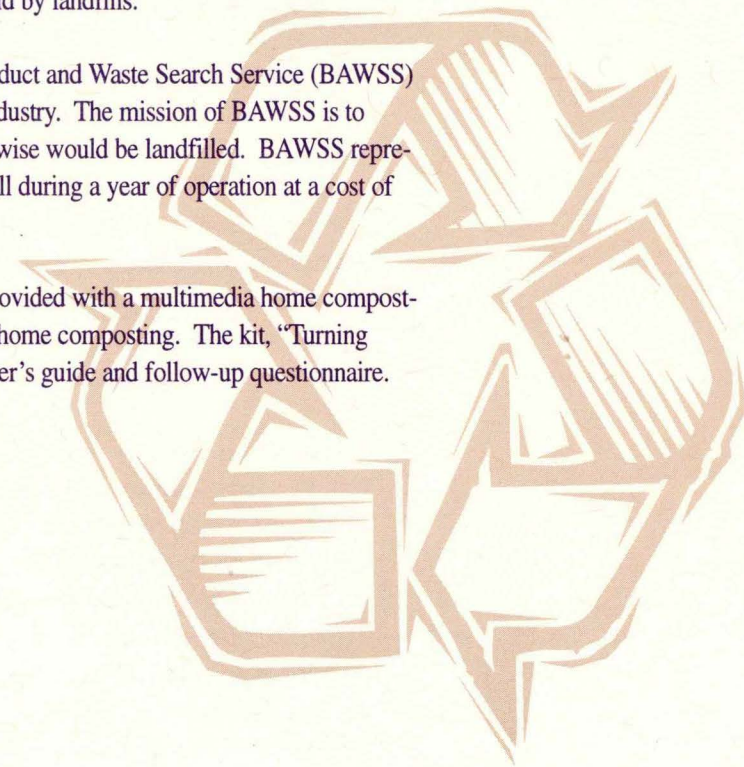
Regional Collection Centers (RCCs). The Metro Solid Waste Authority in Des Moines obtained a solid waste permit for its regional collection center (RCC), and began construction. RCCs provide on-going collection of hazardous materials from households and small businesses, and education to the public on HHMs. Metro's RCC is scheduled to open in December 1994. Other RCCs that have received preliminary approval include the Landfill of North Iowa in Cerro Gordo County (six-county area), Clinton County (includes Cedar and Jackson Counties) and Scott County.

Financial Assistance. The Landfill Alternatives Grant Program awarded approximately \$4.2 million to 29 applicants for a variety of waste reduction, recycling and market development projects. The program is designed to promote solid waste management projects as alternatives to landfilling.

The Landfill Alternatives Financial Assistance Program will replace the Landfill Alternatives Grant Program beginning with the December 1994 round of funding. This program will offer both grants and loans for solid waste projects. These programs are funded through tonnage fees paid by landfills.

Waste Exchange for Business Industry. The By-product and Waste Search Service (BAWSS) is a proactive local waste exchange service for Iowa business and industry. The mission of BAWSS is to assist business and industry to reuse and recycle materials that otherwise would be landfilled. BAWSS representatives have helped divert 10,373 tons of material from the landfill during a year of operation at a cost of \$2000,000 or \$19.50 a ton.

New Video, Guide, Brochure. WMAD clients were provided with a multimedia home composting kit aimed to spark interest and encourage local citizens to begin home composting. The kit, "Turning Your Spoils to Soil," included a video, companion brochure, presenter's guide and follow-up questionnaire.



Energy

Building Energy Management. Iowa's programs helped public and nonprofit agencies

across the state save tax dollars through saving energy. At the end of FY94, \$121 million worth of cost effective energy management improvements had been identified in state facilities, local governments, schools, hospitals and private colleges. Of the improvements identified, \$60 million worth had been installed, which will save \$11 million annually in tax dollars.

During FY94, eight life-cycle cost analysis reports were reviewed for public facilities. A life-cycle cost analysis will show the total cost of the building including not just the initial cost, but the energy costs and maintenance for the life of the building. The reports indicated that as a result of constructing the public buildings based on lowest life-cycle cost rather than lowest initial cost, savings of \$1.82 million will be realized during the next 25 years.

The Iowa Veterans Home in Marshalltown began a major new energy efficiency initiative in FY94. The project was the result of a comprehensive engineering study which was commissioned to provide the facility with a blue print for ensuring that the facility meets the needs of the clients into the future. The study will result in the home having new, more efficient boilers, a new chiller, more electrical generating capacity and a fully automated powerhouse. The study resulted in a 10-year master plan for the facility. The project is financed in such a way that the resulting energy and energy related savings will pay for the cost of improvements. Annual energy and operational savings are projected to be \$275,000 annually; groundbreaking for the project occurred in July 1994 and the project is expected to be completed by the end of February of 1995.

In FY94, the building energy management program began working with some of the larger cities and school districts in the state to help them become energy efficient. The Des Moines Independent School District, City of Waterloo, Waterloo Community School District and the Sioux City Community School district have all joined the Iowa Energy Bank Program and are identifying cost saving improvements. The DNR anticipates that in these facilities alone, \$6 million in energy improvements will be implemented, saving \$1 million annually.

Continued growth and development of partnerships have been the watchwords for the building energy management program. The program worked with investor-owned utilities to develop and distribute 5,000 copies of a guidebook on energy efficiency programs available in the state. This guidebook will not only help existing entities within the state to better assess the availability of programs, but will also help state and local government to present an accurate picture of the benefits of relocating into their communities.

Public involvement in the building energy management programs is obtained through two advisory committees. One is the Technical Advisory Committee. The purpose of this committee is to evaluate and develop the technical quality of building energy analyses completed for public and non-profit agencies in the state. Members of the committee include engineers, architects, utilities and building operators. The committee meets semi-annually in January and June. The second committee, the Iowa Energy Bank Advisory Committee, helps the Iowa Energy Bank Program provide the most effective services for schools, local governments, hospitals and private colleges. The committee is made up of representatives of associations representing Iowa's schools, hospitals, local governments, private colleges, utilities and other officials related to the field of Iowa's public and nonprofit organizations.

Iowa Grown Fuels. The first Iowa Biomass Energy Plan was developed in March 1994, and explores the potential for seven biomass energy resources: ethanol from food grains, dedicated energy crops, wood and wood waste, methane, biodiesel, municipal solid waste and row crop residue. For each energy type, the plan provides an overview of the current usage, production and potential as well as articulating a vision and mission statement. The overall goal of the plan is to create a path to making Iowa a national

leader in biomass energy production and use. The plan will be updated every two years and is designed as a blueprint for Iowa's sustainable energy future.

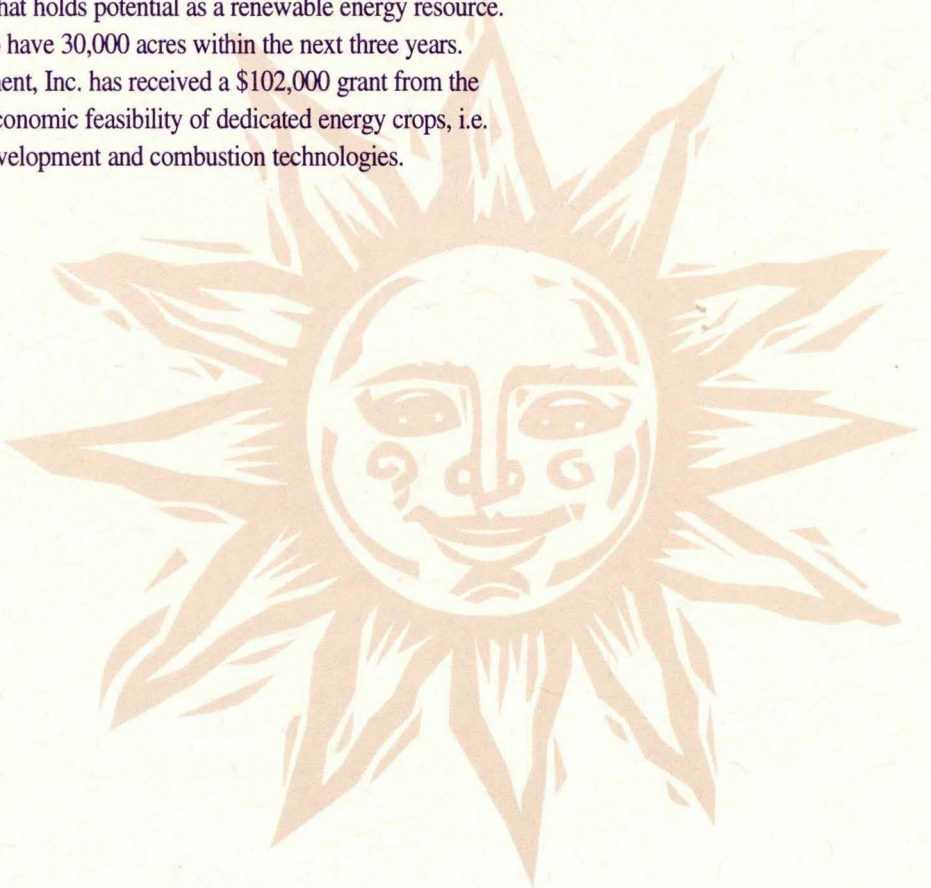
In FY94, the State of Iowa continued to maintain its status as the operator of the largest ethanol-powered fleet in the nation, with 80+ vehicles running on 85 percent ethanol (E-85). The E-85 cars satisfy a 1991 law which requires that by July 1, 1994, 10 percent of all new passenger vehicles and light pickup trucks purchased for the state fleet must be alternatively fueled vehicles. In addition, new vehicles will be added to the fleet each year to meet the 10 percent goal of the law.

In May 1994, the Siouxland Interstate Metropolitan Planning Council (SIMPCO) transferred ownership of two Ford Tauruses and two Harley-Davidson motorcycles which operate on 85 percent ethanol to the Woodbury County Sheriff's Department and the Sioux City Police Department, respectively. The vehicles were purchased by SIMPCO via a grant from the DNR. Sioux City and Woodbury County are the first local governments in Iowa to own and operate E-85 vehicles.

The State of Iowa has established refueling sites for the E-85 blend in Des Moines, Ames, Iowa City, Cedar Falls, Sioux City and Waukee. The DNR is continuing to work with private and public partners to install E-85 tanks at both public and private service stations to further advance the high blend ethanol fuel infrastructure.

The Nevada Community School District has received funding for a second wind turbine from a local philanthropist. The wind turbine will provide the school district with renewable and environmentally sound energy.

A consortium of Iowa agencies is working in the Chariton Valley area, establishing new stands of switchgrass and optimizing best management practices for establishment, production, maintenance and storage and handling. Switchgrass is a native, perennial prairie grass that holds potential as a renewable energy resource. More than 100 acres are under study, and the goal is to have 30,000 acres within the next three years. Chariton Valley Resource Conservation and Development, Inc. has received a \$102,000 grant from the National Renewable Energy Laboratory to study the economic feasibility of dedicated energy crops, i.e. switchgrass. The study will address both feedstock development and combustion technologies.



Natural Resources

Forests

The State Forest Nursery at Ames and the satellite nursery at Montrose grew and distributed approximately 3.3 million bareroot conservation tree and shrub seedlings to private landowners and government agencies in Iowa. The nursery cooperated with the Iowa Department of Corrections to provide work opportunities for residents and inmates at Newton and Fort Madison institutions. Nursery facilities were also made available to Iowa State University Forestry Department researchers, in a cooperative effort to reduce the use of pesticides in nursery production.

Managers of Iowa's four larger state forests are using a geologic information system to do a better job of protecting sensitive areas, and applying and tracking forestry practices. The system is called "ArcInfo," and is designed to integrate maps and data so that managers can quickly retrieve information. Global positioning technology is also being employed. GP makes it possible to map many terrain features, and is especially useful for protecting sensitive areas.

Iowa's state forest system is comprised of four large state forests, ranging in size from 7,815 to 11,478 acres and 6 smaller areas of 34 to 314 acres.

Forestry assistance was provided to 8,130 individuals by 12 district foresters, resulting in an additional 36,102 acres being brought under improved forest management, and 6,469 acres of new tree plantings. A total of 492 training and educational sessions for Iowa woodland owners and business were conducted. District foresters promoted the division's forest stewardship program through management planning, promotion and cost-share assistance with a focus on conversion of CRP lands into permanent forest cover.

Urban Forestry. The Division's Urban Forestry Program, in cooperation with the Iowa Urban & Community Forestry Council, provides technical assistance, education training and financial assistance to municipalities and volunteer organizations. During 1994, a total of 252 Iowa communities received direct technical assistance, including completion of 47 comprehensive community tree inventories and management recommendations. Seventy-six Iowa communities were honored by the National Arbor Day Foundation as "Tree City USA" in 1994. An estimated 567,354 trees were planted in Iowa's communities during 1994. The division provided \$30,000 of matching federal funds to 14 local governments to develop sustained community tree management programs. Under contract with the division, Iowa State University Extension Forestry/Horticulture provided up to date publications on tree care and expanded the "Community Tree Steward" program into central and eastern Iowa. Also under contract, Trees Forever, a non-profit organization, provided community volunteer coordination to 325 citizens groups across the state. The forestry division continued a cooperative relationship with the Iowa Department of Economic Development by distributing more than \$325,000 in U.S. Small Business Administration tree planting grants to 52 Iowa local governments for tree plantings by small businesses on non-federal public lands. A total of 2,390 large landscape trees were established.

Education. The "Trees for Kids" program, a cooperative tree education and planting program for elementary and secondary schools, completed its fifth year. Working in partnership with the Iowa Nursery & Landscape Association, Iowa Bankers Association, Peoples Natural Gas, Midwest Gas, Telephone Pioneers,

Trees Forever and the Iowa Wood Industry Association, the division provides free teacher educational materials on trees, and gives the opportunity for a class to receive a free landscape tree for planting during Earth Week. A total 3,700 teachers participated in "Trees for Kids" and its companion, "Trees for Teens" programs, resulting in the establishment of 106,625 seedlings and saplings during 1994. A new cooperative effort allowed production and distribution of a 7 1/2 minute video *Young People Caring About Trees* to all 1,800 school and public libraries across the state.

Forest Health. The division's forest health program began implementation of the flood impacts on Iowa trees and forests during 1994. Through the use of aerial sketch mapping of all major river systems in Iowa, it was determined that 97,000 acres of Iowa woodlands received extensive damage during the floods of 1993. These aerial flights and ground checking for flood damage were done in conjunction with the division's annual insect and disease monitoring efforts on state and private forest resources. An additional project involved the study of potential disease problems of one of Iowa's most widely planted tree, green ash, in cooperation with Iowa State University Extension Plant Pathology.

In cooperation with Iowa State University fire service, \$119,000 was provided in grant funds to rural fire districts across the state. In addition, the division assisted in acquisition and distribution of excess federal military vehicles and equipment for rural fire protection.

Rural Development. In cooperation with the nine Resource Conservation and Development (RCD) areas, the fourth year of the "Rural Development Through Forestry" (RDTF) program was completed. This program distributed \$1 million, in matching federal funds, to encourage economic development in rural Iowa by promoting the utilization of our forest resources.

Parks

Flood Clean Up. Following the floods of 1993, a great deal of FY94 time, effort and money was spent on the clean up effort. Twenty-nine parks and recreation areas were affected enough by the flood waters for the Federal Emergency Management Agency (FEMA) to allocate funds for repairs. More than \$523,200 of state and FEMA funds have been expended on clean up work in state parks. Some of this has been done by private contractors; the major effort, however, has been on the part of the state park staff. In addition to the above figure are the hundreds of hours spent by volunteers from local service clubs and private citizens in assisting park staff.

Plantings in the Park Program. The purpose of the Plantings in the Parks Program is to promote tree planting and landscape enhancement in public use areas within parks such as campgrounds, cabin and picnic areas, entrances and beaches. It is a benefit to the diversity of vegetation and wildlife habitat; a benefit for park visitors, both aesthetically and educationally, by promoting the use of native trees, shrubs, forbs, and grasses for the home landscape; and may eventually benefit the staff in reduced maintenance.

Over the last four years, 1,450 landscape trees (1 1/2" caliper), 250 shrubs, prairie grasses and forbs have been planted in 14 state parks and recreation areas, utilizing a combination of federal and state funds. A federal grant program funded seven projects and accounted for the purchase and planting of 1,340 of the large trees, 600 of which were planted in 1995.

Bushy Creek Plantings. During the fall of 1994, more than 100,000 trees and shrubs were planted on 135 acres of bottomland fields along the Des Moines River in the Brushy Creek State Recreation Area near Ft. Dodge. This project was part of the wetland mitigation plan for the construction of the Brushy Creek dam and lake. Eight species of bottomland hardwood trees such as green ash, silver maple, cottonwood, and walnut were planted to recreate bottomland forest in locations where it has been cleared and farmed in the past.

Nine species of shrubs including ninebark, plum, dogwood, and chokecherry were also planted in strips adjacent to the tree plantings to enhance wildlife habitat.

ADA. In 1993 the DNR completed its Americans with Disabilities Act Self-Evaluation and Transition Plan. The plan looks at the entire agency and evaluates how effectively all segments of the public, including persons with varying disabilities, are served by agency divisions and bureaus. The goal of the "ADA" program is to ensure that all citizens, regardless of disabilities, have access to agency programs, activities and services. In FY94, significant efforts took place in state parks and recreation areas, wildlife areas, state forests and public fishing lakes to improve access for persons with mobility impairments.

Ecosystem Management Planning. In FY94, the Division of Parks, Recreation & Preserves coordinated an ambitious effort to more effectively plan for and manage the natural resources of state parks and recreation areas. The ecosystem management planning process involves a team effort with personnel from DNR Forestry, Fish and Wildlife, and Parks, Recreation & Preserve's divisions. They inventory the area plant, fish and wildlife communities, and develop management programs to ensure that the viability of these communities is maintained without interruption of visitor enjoyment. The planning team examines not only resources within the parks, but also the surrounding lands to determine where threats to the parks' resources may arise from; for example, agricultural practices that may impact lake or river water quality. Planning commenced at six parks and recreation areas in FY94.

Water Recreation and ATV. The Water Recreation Access Cost-Share program continued to assist local entities with funding of 16 boating access sites across Iowa. Some of these projects included the Martin Marietta Access in West Des Moines, a ramp at Belle Plain in Iowa County, one at Deer Creek Lake in Plymouth County and one at Lake Ahquabi in Warren County.

Registration fees from snowmobiles and ATVs continued to be distributed to local clubs and political subdivisions to provide for acquisition, development and maintenance of 8,000 miles of groomed snowmobile trails and three ATV riding areas.

Preserves. One new preserve was added in 1994. Malanaphy Springs is a 64-acre area located along the Upper Iowa River in Winneshiek County. A sizable spring, a 10-foot waterfall and a tufa (a chemical sedimentary rock formed of calcium deposit) are important features of the preserve. A cold air slope and a steep north-facing cliff provide habitat for a number of rare species, including two species of land snails. The area was purchased in two parcels, the first in 1947, and the second in 1964. Since the original purchase, the area has been managed as a wildlife area.

Due to the increased interest and the number of requests to collect seed from prairie preserves, the advisory board developed a policy concerning how these requests will be submitted and acted upon. The policy specifies what types of requests are eligible, and how and when they should be submitted.

A 750-foot meander cut of Watermann Creek was rip-rapped to prevent cutting into Wittrock Preserve. The flooding during 1993 greatly accelerated the cutting making it necessary to protect the creek bank. Total cost of the project was \$42,000 for emplacement of rip-rap, construction of a gabion basket, and the necessary earth work. A grant of \$40,000 was received from the Soil Conservation Service Emergency Watershed Protection Program. The SCS grant made completion of the project in 1994 possible.

Fish

Vegetation control, shoreline riprap, placement of stake beds, pallet structures, broken concrete and

brush piles were methods used to complete aquatic habitat improvement projects at 26 lakes during FY94. They were Lake Ahquabi, Littlefield Lake, Morman Trail Lake, Orient Lake, Barge Lake, Middle Sabula Lake, Lower Sabula Lake, George Wyth Lake, Lake Keomah, Indian Lake, Hickory Grove Lake, Lake Darling, Lake MacBride, DeSoto Bend, Lake Wapello, Centerville Reservoir, Coralville Reservoir, Lake Iowa, East Lake, South Hartman Pond, Koutney Pond, Big Creek Lake, Spring Lake, Crystal Lake, Deer Creek Lake and Crawford Creek Lake. Non-traditional habitat; "Bio-Reef" fish attractors were placed in Heron Pond (Pool 12, Mississippi River backwater lake) and Berkley Fish Hab modules were placed in Black Hawk lake. The Lansing Big Lake (Pool 10) Habitat Rehabilitation and Enhancement Project was completed to protect the ecosystem from sedimentation by effecting closures of three major channels leading into the lake. Habitat planning included the planting of 6,000 poplar, green ash and silver maple seedlings in the future basin of the Lost Grove Lake site. An aeration system was installed at Cold Springs Lake for summer destratification.

Bank stabilization, half-log structures, bankhides, "lunker hides" and woody vegetation removal along streams were habitat activities conducted at the following 14 trout streams: Little Mill Creek, Richmond Springs, Brush Creek, Big Mill Creek, South Bear Creek, Mestad Springs, Trout Run Creek, Coldwater Creek, Coon Creek, French Creek, Middle Bear Creek, North Bear Creek, North Cedar Creek and Sny Magill Creek.

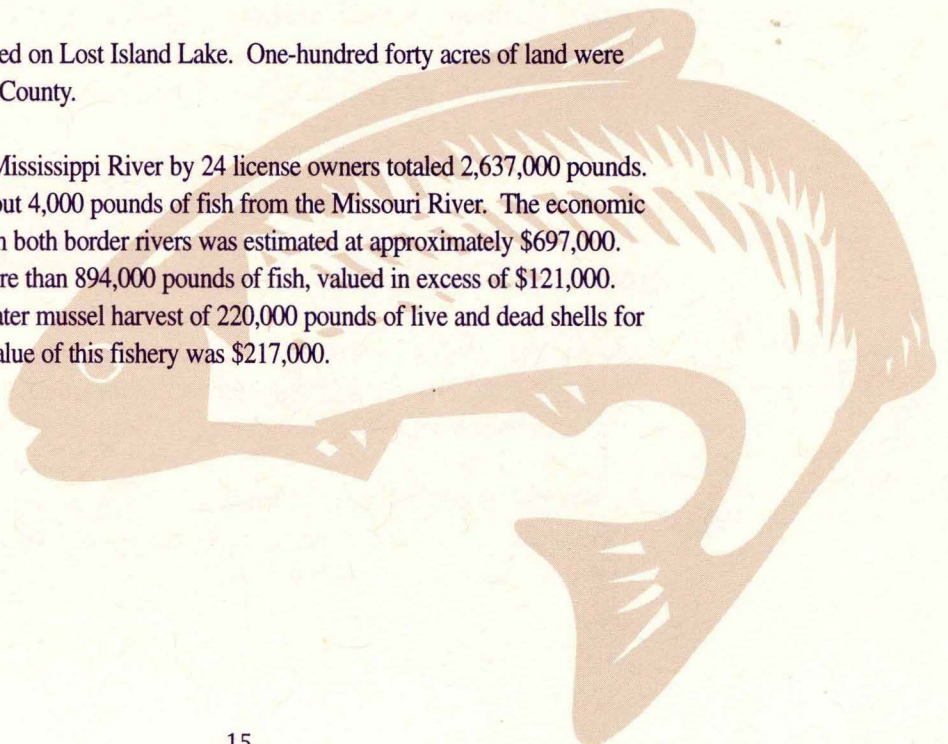
The fish culture facilities reared and stocked more than 129 million fish into public waters of Iowa. This total included 350,000 trout, 111 million walleye, 2.3 million northern pike and 1.2 million channel catfish.

Fish population renovation projects were completed at Big Marsh Pond (Butler County); two ponds in the Deer Creek Lake watershed, one pond in Lake Darling State Park; six pits on the Nishna Recreation Area (Shelby County) and eight ponds in the Lake Ahquabi watershed. 300 flathead catfish were stocked in DeSoto Bend Lake to control a stunted bullhead and carp fishery.

One-hundred ninety fishing clinics/outdoor classrooms were sponsored or co-sponsored by fisheries personnel. Staff made presentations at 115 meetings or organized groups. The bureau provided information for 341 newspapers articles and 48 magazine articles. A total of 188 radio programs and 27 television interviews were presented during the year.

Twelve hundred feet of frontage was purchased on Lost Island Lake. One-hundred forty acres of land were purchased on South Pine Creek, Winneshiek County.

The commercial harvest of food-fish on the Mississippi River by 24 license owners totaled 2,637,000 pounds. Four licensed owners reported harvesting about 4,000 pounds of fish from the Missouri River. The economic value of commercial food-fish harvested from both border rivers was estimated at approximately \$697,000. Contracted commercial anglers harvested more than 894,000 pounds of fish, valued in excess of \$121,000. Forty-three Iowa licensees reported a freshwater mussel harvest of 220,000 pounds of live and dead shells for little change since last year. The estimated value of this fishery was \$217,000.



Wildlife

About 3,100 acres of wetland and upland habitat were purchased and placed into public ownership through the Prairie Pothole Joint Venture. The cooperative program included funding of more than \$1.6 million from the U.S. Fish and Wildlife Service, \$365,000 from state habitat stamp, \$290,000 from county habitat stamp, \$160,000 from state waterfowl stamp, \$370,000 from the Resource Enhancement and Protection Program (REAP) and \$410,000 from private conservation organizations and private donations. The Iowa Natural Heritage Foundation, Pheasants Forever and Ducks Unlimited continue their strong commitment to this program. Work has proceeded on the acquisition of an additional 720 acres in the Great Lakes Watershed in Dickinson County, which is being protected through a \$930,000 project approved for funding by the North American Wetlands Conservation Act (NAWCA).

The Lost Island-Trumbull Lake Watershed Project was also approved for NAWCA funding. This \$938,000 project will protect 750 acres of wetlands and surrounding uplands and will enhance an additional 750 acres of wetlands and uplands. All three of these projects rely heavily on cooperation between the DNR, the federal government, the counties and various private conservation organizations and individuals.

Approximately 374 acres of land was purchased for the Lost Grove Lake site in Scott County and an 18-acre flowage easement was purchased for a future silt pond. An additional 232 acres of land were purchased in the Lake Sugema watershed in Van Buren County, for construction of a sediment/nutrient silt pond.

Acquiring land for wildlife habitat and recreational activity is an important objective of the wildlife bureau. Fiscal year accomplishments include the acquisition of more than 4,050 acres of new public land at a cost of \$2.6 million. Funding sources include state habitat and waterfowl stamps, REAP, USFWS and private conservation organizations.

The Shelterbelt Cost-Share Program resulted in the establishment of 40, eight-row shelterbelts at a cost of \$45,000. Funding for this program is from habitat stamps and the Chickadee Checkoff. All shelterbelts are planted on private land. Wildlife management personnel are responsible for conducting population and harvest surveys and developing and maintaining 333 public wildlife areas totaling more than 260,000 acres.

Iowa's wildlife populations continue to attract resident and nonresident hunters. Approximately 390,000 resident and 44,000 nonresident hunting licenses were purchased to pursue pheasant, deer, turkey and other small game. The pheasant harvest totaled about 1.25 million birds, making Iowa the top state in the nation. Hunters took 87,000 deer during bow, shotgun and muzzleloader seasons. Turkey hunters took 11,700 birds during the spring and fall seasons. Deer and turkey hunter success rates remained among the highest in the country.

Production increased for most duck species in Iowa. Many of Iowa's wetlands experienced excellent water conditions during the spring of 1994 due to excellent rainfall across the state. Giant Canada goose production reached an all-time high of 52,000 goslings.

Nongame programs also continued to fulfill their long range objectives. Three peregrine falcon nests were confirmed from birds released through earlier reintroductions in the state. Five young peregrines were hatched in these nests, making them the first falcons to be born in Iowa in 30 years.

FEMA and Flood '93 and '94 Impacts. During the floods of the summer of '93 swollen streams and rivers spilled out over floodplains and ripped through 110 wildlife management areas, one-third of all state-owned lands managed for fish and wildlife.

Those areas nearest to river corridors took the biggest hit. Boat ramps, roads, parking lots and levees were especially vulnerable. The destruction caused by the flood was over \$1 million. Forty miles of levees, 90 miles of roads, 325 parking lots and 109 boat ramps were damaged, and eight miles of drainage channels were filled with sediment, making most of these areas useless to the sportsmen in 1993 and part of 1994.

Many acres of wildlife habitat were also destroyed. Approximately 306 miles of streams flow through wildlife management areas; and when these streams overflowed the floodplains, tons of sediment filled marshes, backwaters and shallow impoundments. Many acres of aquatic habitat were quickly changed to terrestrial habitat. Much of the appeal of these bottom lands was lost.

Thousands of acres of riparian forests were lost on wildlife areas and the impacts of long-term flooding were not realized until 1994. Bottomland species that had high mortality included black walnut, hackberry, cottonwood and silver maple.

Impacts on wildlife species are immeasurable in this damaged riparian habitat. Small mammals are limited in this environment, but the highest quality habitat for birds, and for some amphibians and more mobile animals such as deer and turkey is located in or near floodplain forests. Riparian hardwoods form a protective corridor for many of these species; without it, they become vulnerable.

As stated earlier, damage to wildlife habitat will take some time to recover, but our riparian forests will regenerate and other floods will create new wetlands.

Law Enforcement

Through Iowa's Turn-In Poachers (TIP) program, a total of 394 TIP calls were processed during the year.

These calls from private citizens, resulted in 33 successful cases and 85 citations were issued. A total of \$5,700 was approved for reward payment by the private TIP group, TIP of Iowa, Inc.

The computer file system of habitual or repeat violators of fish and wildlife laws was continued. The department has authority to revoke and suspend the license privileges of those subjects who have accumulated a minimum amount of violation points. To date, the habitual offender file has information on 9,500 individuals, and of this number, 360 will have had some type of license suspension action taken against them by the DNR.

Liquidate Damages \$91,247.95 Collected

Species Number

Deer	46
Fish	457
Furbearer	12
Rabbit	9
Raccoon	23
Squirrel	4
Turkey	10
Upland Game	75
Waterfowl	27
Other	10
Total	673

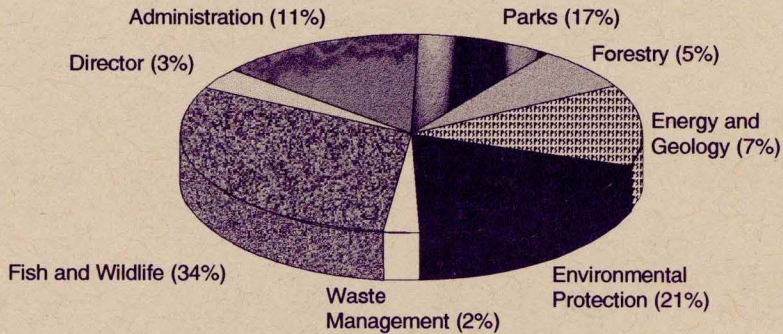
Educational and Recreational Classes

	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester	ATV	Bow
Instructors certified	51	10	0	8	1	76
Classes conducted	409	24	16	4	20	12
Students trained	14,052	731*	900*	46	28	361

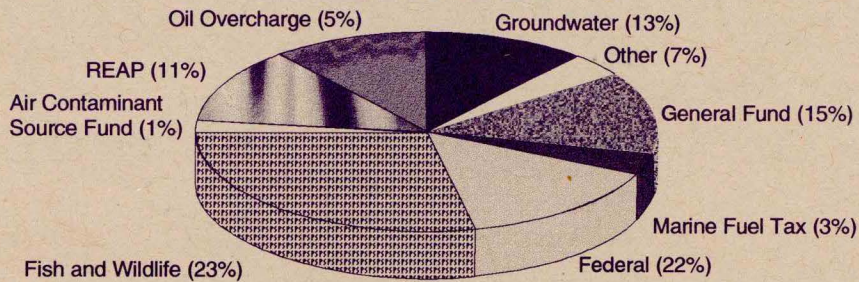
*includes some home-study courses

FY94 BUDGET

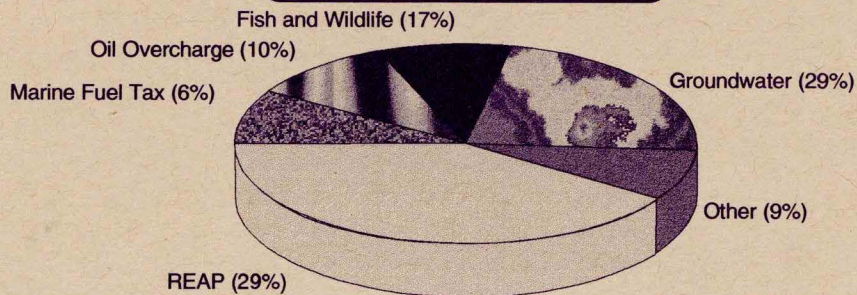
OPERATIONAL EXPENDITURES by Division \$49,847,787



Sources of Funds For TOTAL EXPENDITURES \$81,428,836



Sources of Funds For CAPITAL AND SPECIAL PURPOSE EXPENDITURES \$31,581,049



Iowa Department
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