

IOWA DEPARTMENT
OF NATURAL RESOURCES



Jeffrey R. Vonk
Director

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EQUAL OPPORTUNITY

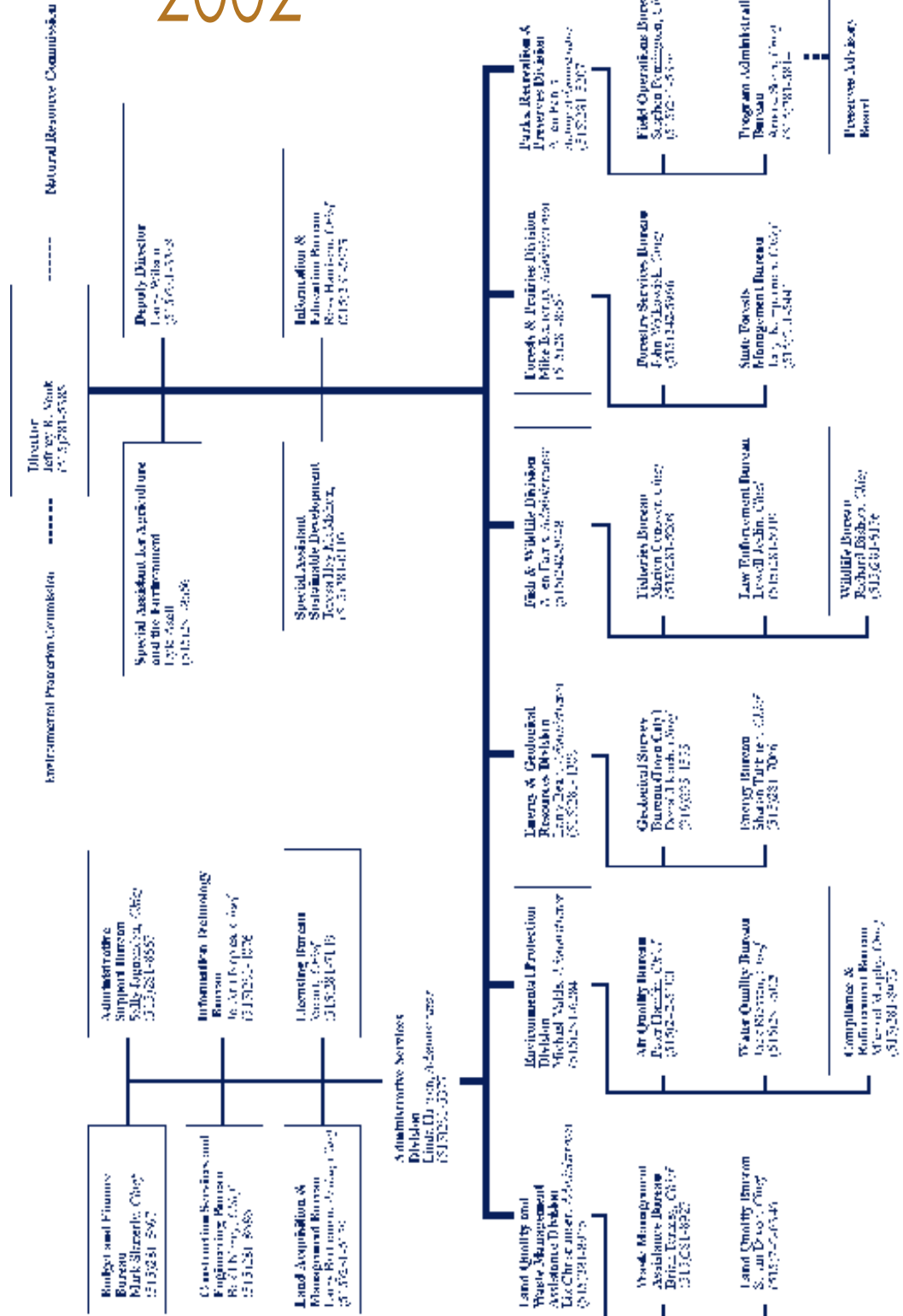
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Wallace State Office Building, 502 East Ninth Street,

Des Moines, IA 50319-0034.

2002





COMMISSIONS

2001

ENVIRONMENTAL PROTECTION COMMISSION

James Braun, Latimer
Lisa Davis Cook, West Des Moines
Lori Glanzman, Mount Pleasant
Darrell Hanson, Manchester
James Tobin, New Market
Kathryn Murphy, LeMars
Gary C. Priebe, Algona
Terrance Townsend, Newton
Rita Venner, Breda

NATURAL RESOURCE COMMISSION

Paul Christiansen, Mt. Vernon
R. Kim Francisco, Lucas
Richard Garrels, Mt. Pleasant
Carol Kramer, Newton
Marian Meyer, La Motte
Joan Schneider, Okoboji
William Sullivan, Cantril

PRESERVES ADVISORY BOARD

Gary Phillips, Estherville
Jonathan Steege, Maynard
Lois Tiffany, Ames
Timothy Sproul, Missouri Valley
Kathy Gourley, Johnston
Robin Fortney, Des Moines
Neil Bernstein, Cedar Falls

2002

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DIRECTOR'S MESSAGE

“Opportunity” is really the definitive word for Iowa right now. The state and its vast natural resources — including its people — offer an incredible opportunity to chart a new direction that both preserves our rich heritage and uses the innovation and enthusiasm of its citizens to build a more prosperous future for our state.

Let me say right up front that one of my cornerstone beliefs is that environmental protection, resource conservation and economic development *are not* mutually exclusive — we can successfully accomplish all three by respectfully working together. I would even take it one step further in stating that we *cannot* meet our goals relating to economic development without proper and effective resource management. The very foundation of our state’s economy has always been on the rich, fertile soil of our landscape.

But beyond the obvious agricultural productivity of our soil, quality of life is key to attracting former Iowans and top-notch newcomers to move to Iowa. Virtually all the issues the Iowa Department of Natural Resources deals with touch directly on quality of life: fresh air to breath and clean water to drink. Recreational opportunities such as parks, trails, hunting, fishing and wildlife observation are fundamental to economic development efforts. So is providing the system and processes that allow business and industry to prosper here while still protecting the environment.

An economic philosophy that is beginning to take root in other parts of the country is the concept of a “new economy.” The premise of this concept is that the number of highly educated, highly paid people who are not tied to a specific area for their careers is growing. In other words, these people can live anywhere to do their work.

I believe we can attract these types of people. Iowa has what I call “front porch appeal.” It’s a place where children receive a first-class education in a clean, safe environment and parents can actually spend more time with their children rather than stuck in



Jeffrey
Vonk

traffic. The prospect of expanding outdoor recreational opportunities continues to grow and the solution to environmental challenges go hand-in-hand with meeting this demand.

Iowa’s DNR represents some of the best and brightest this state has to offer in terms of the people we have employed in the agency, their knowledge, their expertise and their commitment. The diversity of the people we have working for you as citizens of the state represents a wide-variety of interests and experience united behind a genuine, common desire to make a difference in our environment.

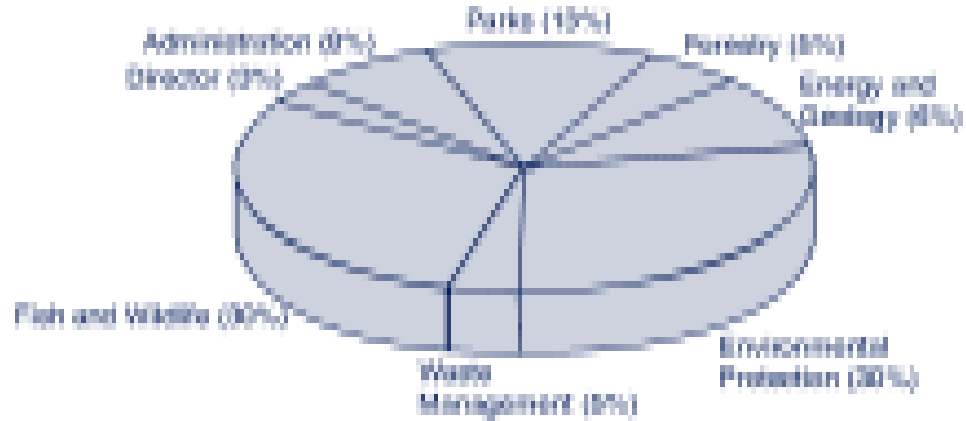
This report summarizes fiscal years 2001 and 2002. During these two years, important groundwork was laid to meet the current and future demands for the Department of Natural Resources. Since this time, restructuring of the department has reduced the number of divisions from seven to three. We are taking a very focused look at the processes we use to meet the needs of our customers, including a continued emphasis on ways we can have more direct contact with the people we serve.

A handwritten signature in black ink that reads "Jeffrey R. Vonk". The signature is fluid and cursive, with the first name being the most prominent.

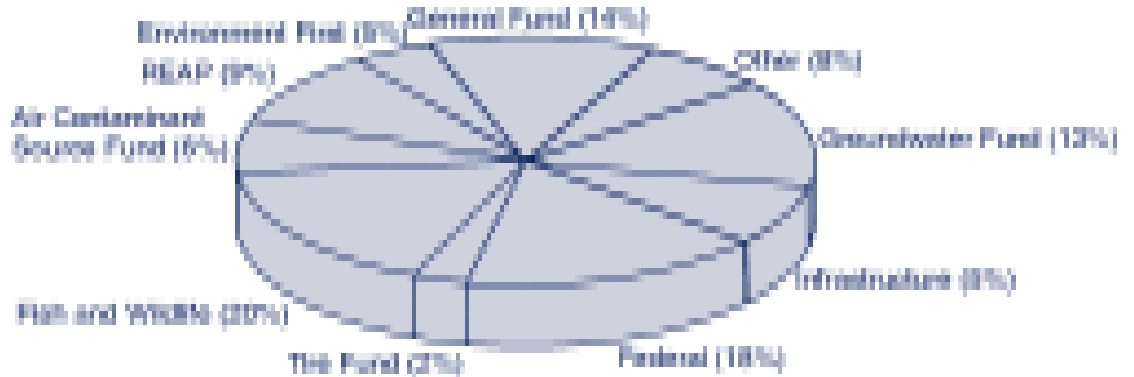
Jeffrey R. Vonk
Director

FY01 EXPENDITURES

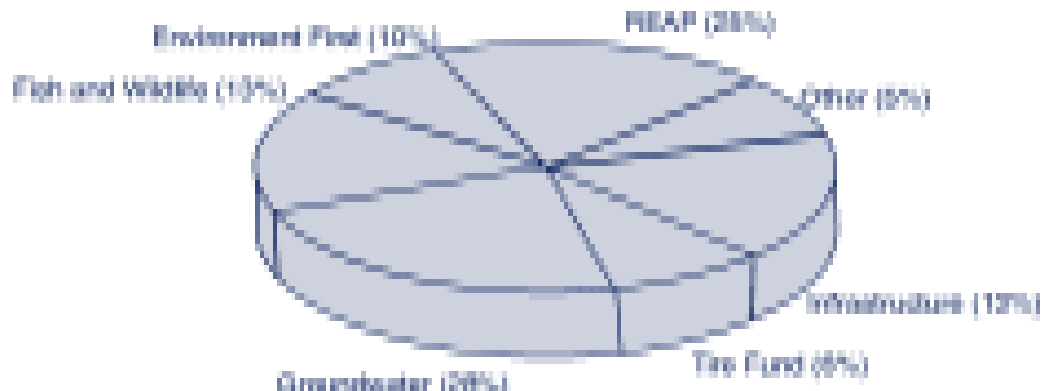
**OPERATIONAL EXPENDITURES
by Division
\$79,024,107**



**Sources of Funds For
TOTAL EXPENDITURES
\$128,473,640**

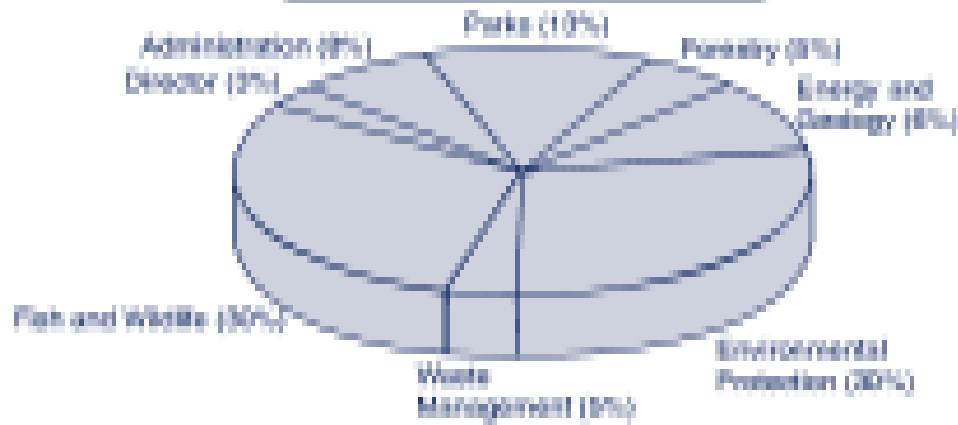


**Sources of Funds For
CAPITAL AND SPECIAL
PURPOSE EXPENDITURES
\$48,418,233**

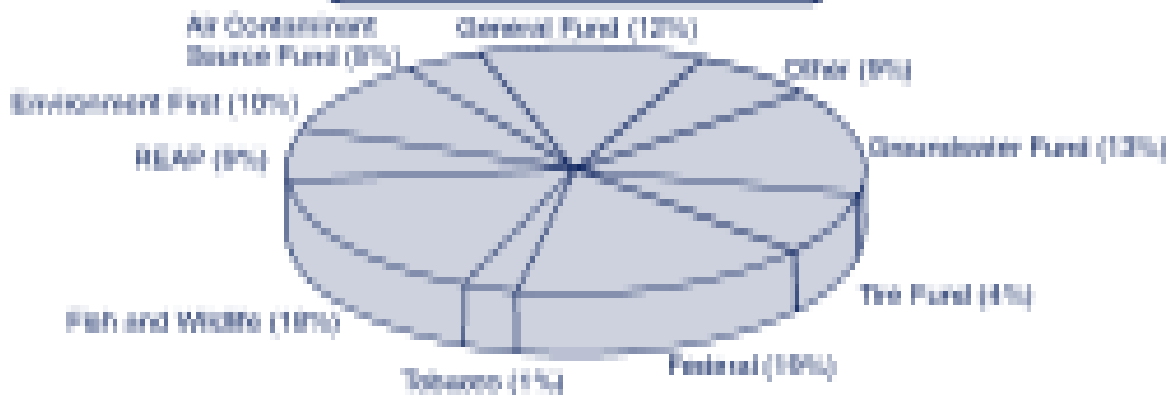


FY02 EXPENDITURES

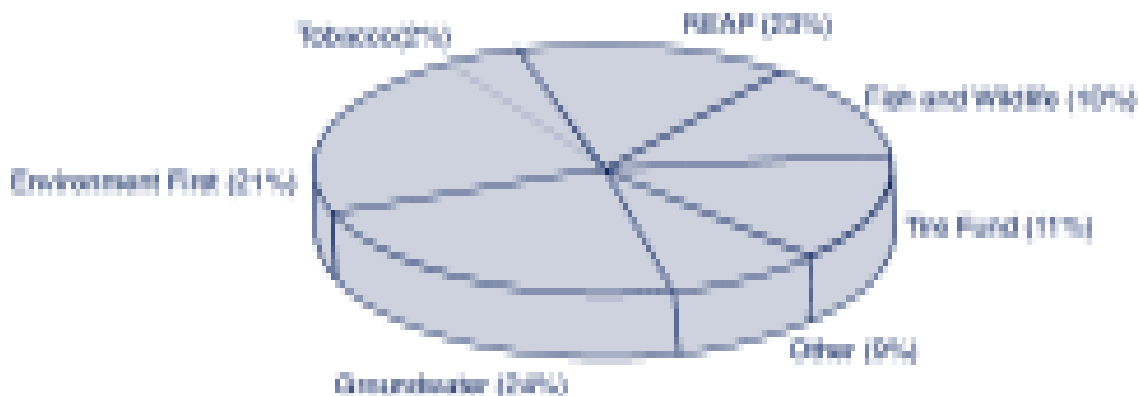
**OPERATIONAL EXPENDITURES
by Division
\$78,365,778**



**Sources of Funds For
TOTAL EXPENDITURES
\$182,881,878**



**Sources of Funds For
CAPITAL AND SPECIAL
PURPOSE EXPENDITURES
\$63,338,300**



Nonpoint Source Pollution

Ironically, Iowa's top natural resource - its rich, productive soil - is also the leading contributor to water pollution due to sediment and nutrients from both agriculture and urban sources. This type of pollution is called nonpoint source pollution (NPS). The DNR continued its efforts to reduce nonpoint source pollution by working with the Division of Soil Conservation of the Iowa Department of Agriculture and Land Stewardship, the Natural Resources Conservation Service, Iowa State University, and other state and local groups and agencies to sponsor nonpoint source pollution control projects, research, and education.

An important part of the DNR's nonpoint source program involves voluntary pollution control projects in watersheds throughout the state. Approximately \$5.3 million in U.S. Environmental Protection Agency (EPA) nonpoint source funds were administered by the DNR in 2001, with about \$3.4 million being targeted for specific nonpoint source pollution control projects carried out by local organizations. For 2002, the same level of funding was available with about \$4.7 million provided for NPS projects. More than 100 nonpoint source research and implementation projects have been funded since 1990, with the majority of the funding going to local soil and water conservation districts to promote best management practices aimed at reducing the amount of soil, nutrients and pesticides reaching Iowa's streams and lakes. Since 2000, EPA has been directing states to provide a portion of the annual grant funds toward projects for waters on the Section 303(d) list of impaired waters.

Animal Feeding Operations

The DNR has regulated animal feeding operations (AFOs) for a number of years but major legislative changes in 1995 and 1998 greatly expanded the DNR's regulatory role. Senate File 2293, which became effective in April 2002, once again placed more requirements on confinement feeding operations, including

lowered permit thresholds; increased county oversight through the use of a matrix to evaluate environmental, social and community impacts; prohibitions on floodplain construction; use of a phosphorus index for manure application; increased separation distances; annual approval of manure management plans; and manure management plan filing fees. During the latter part of 2002, Department staff began the process of developing administrative rules to implement these and other statutory requirements, working with various stakeholders representing a variety of interest groups.

As part of the DNR's AFO program, construction permits are needed for animal feeding operations greater than a certain size. During fiscal year (FY) 2002, 41 AFO construction permits were issued, while 33 were issued in 2001. Most of the permits were for swine confinement operations. The DNR also investigated 492 complaints associated with AFOs in 2001 and 419 in 2002.

In addition to the numerous confinement feeding operations (those under a roof and not exposed to rainfall), Iowa has a number of open lots, primarily for dairy and beef operations. Most of the larger open lots were not in compliance with the requirement for operation permits and the Department worked with the EPA, Iowa Cattleman's Association and environmental groups to develop a plan to bring open lots into compliance. Under the approved plan, nearly 1,600 open lots registered their operations and the Department began the task of assessing environmental risk of each lot so the highest risk lots could be targeted for the initial compliance efforts. The Department expects that by 2005, most open feedlots will have been brought into compliance with applicable standards and regulation to control the runoff of pollutants.

Discharge Permits

The discharge permit program of the DNR limits the amount and concentrations of pollutants released into streams and rivers. Iowa has more than 1,700 facilities such as municipal wastewater treatment plants and industries that discharge wastes into waters in accordance with DNR-issued

discharge permits. Permit holders are required to monitor wastewater effluent and the DNR reviews the monitoring data to ensure permit limits are not exceeded. During 2001, 449 permits were issued or renewed, and 354 were issued in 2002. In 2001 a general permit was also issued for discharges from mining and quarry operations. Approximately 350 facilities were issued authorizations to discharge under this permit in 2001 to 2002.

The DNR also continued to carry out an industrial pretreatment program. Conventional wastewater treatment methods typically are not effective in removing industrial pollutants such as metals. The pretreatment program is designed to reduce the amount of pollutants industries discharge to municipal wastewater treatment systems. At the end of 2002, 21 Iowa cities had pretreatment programs limiting the discharge of industrial pollutants to their wastewater plants.

Wastewater Plants

The DNR has regulatory responsibilities for wastewater treatment plants from the planning stage through the operating lifetime of the plant. Plans for new facilities and modifications to existing plants, are reviewed by the DNR and construction permits issued. During 2001, construction permits were issued for 114 facilities. During 2002, 77 permits were issued. In addition to ensuring wastewater plants are properly designed and constructed, the DNR also makes sure facilities are properly operated by administering the wastewater operator certification program.

The DNR provides financial assistance to upgrade or replace wastewater facilities through a low-interest revolving loan program. In 2001, more than \$22.6 million in financial assistance was provided to 17 cities under this revolving loan fund. For 2002, more than \$31.8 million was provided to 27 cities.

Water Quality Standards

Water quality standards ensure that surface water is safe for swimming and drinking, and can support healthy, diverse aquatic populations. States are required to periodically review their standards to identify needed changes. In 1999, the DNR began a comprehensive review of Iowa's water quality standards. Public input was sought and a technical advisory group was formed to assist the DNR in identifying needed changes. Based on the comments from the public, the advisory committee and the EPA, issue papers were developed to begin evaluating needed changes. The second round of changes were published for comment and adopted in 2002. The DNR anticipates

water quality standards revisions will continue into 2003 and 2004.

Water Quality Monitoring

The 1999 General Assembly appropriated about \$1 million to significantly expand the DNR's water quality monitoring program. In 2000, funding nearly doubled to \$2 million. With the assistance of stakeholder groups and technical advisory groups, the DNR developed a monitoring strategy and began implementing it in 2000. By the end of fiscal year 2000:

- Sixty-four sites were being monitored monthly or more frequently for physical and chemical parameters, including pesticides and pesticide metabolites.
- Comprehensive sampling was conducted at seven sites to determine spatial and temporal variability of pollutants.
- Rivers upstream and downstream of 10 metro areas were monitored to determine urban impacts.
- Biological monitoring was expanded to 20 baseline sites and 57 potentially impaired sites.
- Data was collected at 130 Iowa lakes.
- All state-owned swimming beaches were monitored for fecal contamination during the recreation season, with results posted on a website.
- A database for data storage was established.
- More than 500 citizens were trained in basic water quality monitoring. More than 350 sites were monitored by volunteers with data posted on the website.

Water Supply

Iowa's public drinking water program originated in the 1920s and expanded with the passage of the federal Safe Drinking Water Act (SDWA) in 1974. The DNR is responsible for ensuring the drinking water provided by Iowa's 1,900 public drinking water supplies meets state and federal drinking water standards. Municipalities, rural water systems, subdivisions, factories, schools, restaurants, and convenience stores all are types of public water supplies.

Public water supplies are required to monitor drinking water for acute contaminants – such as nitrate and coliform bacteria – that can cause immediate adverse health effects, and for chronic contaminants – such as heavy metals, radionuclides and pesticides – that can cause long-term adverse health effects. More than 100 contaminants currently are monitored by

community water supplies. In calendar years 2001 and 2002, there were no waterborne disease outbreaks or deaths attributed to drinking water from Iowa's regulated supplies. During 2001, 83 percent of the public water supplies were in full compliance with monitoring and reporting requirements, and 92 percent of public water supplies complied with allowable contaminant levels. For 2002, these figures were 77 percent and 90 percent, respectively. Public water supplies not in full compliance during the year were required to return to compliance and notify the public of the violations and possible health ramifications.

The 1996 reauthorization of the federal Safe Drinking Water Act resulted in several new drinking water programs carried out by the DNR including a state revolving loan fund (SRF), consumer confidence reporting (CCR), viability assessment, and source water protection programs.

- The SRF provides low-interest loans for the construction of water treatment facilities. Loans totaling \$25.6 million were financed for 9 projects in 2001, and \$42.6 million for 26 projects in 2002. Since the program began in 1997, more than \$100 million has been loaned to water utilities. Revised rules fixing the interest rate at three percent and allowing for additional flexibility in the program were promulgated in 2001.

- The CCR provisions require community water supplies provide consumers an annual report on the quality of the water delivered. This information includes the sources of the water, detected contaminants, violations and ways the public can become involved with their water system. Iowa had CCR compliance rates of 99.5 percent and 98.3 percent for 2001 and 2002, respectively.

- The viability assessment program provides procedures to ensure new public water supplies will be able to meet all state and federal drinking water requirements at a reasonable cost to their customers for the foreseeable future. The viability of eight new systems was approved during 2001, while seven systems were approved during 2002. The second component of the program allows for measuring and improving the viability of existing systems.

- The SDWA amendments of 1996 required states to assess the source water of each public water supply. This work began in 2000 and is scheduled for completion by the end of 2003. During 2000 and 2001, 427 assessments were completed for public water systems, while an additional 1,066 were completed in 2002.

As part of ensuring drinking water standards were met by Iowa's public water supplies, the DNR issued 742 new or revised operation permits in 2001 and 1,573 in 2002. In 2001, 494 construction permits were issued, with 574 issued in 2002. The DNR conducted 515 water supply sanitary survey inspections in 2001 and 498 in 2002, provided technical assistance to the operators and public, and investigated complaints. The DNR also administers a certification program for water treatment and distribution operators, well drillers/contractors, wastewater system operators and environmental laboratories. These programs are administered through the DNR's Water Supply Section. As of the end of 2002, 4,423 operator and contractor certificates and 213 certified environmental laboratories existed in Iowa.

Water Use

The DNR regulates the use, diversion and withdrawal of surface and groundwater under state laws that ensure the state's water resources are put to beneficial use and are properly allocated. In FY 2001, 148 new use/withdrawal permits were issued and another 289 were reissued or modified. In 2002, 111 new permits were issued and 293 reissued or modified. Additionally, 50 water use registrations were processed in 2001 and 35 in 2002. Registrations are required for minor, nonrecurring uses.

Private Well Testing, Plugging, and Rehabilitation

The same wells that are used to bring groundwater to the surface also can be potential conduits for contamination of underground aquifers. Through the Grants to Counties Program, the DNR helps private well owners test existing wells, plug abandoned wells, and rehabilitate older wells. In 2001 and 2002, 98 counties were provided a maximum of \$15,000 each to assist in testing, plugging and rehabilitating private wells. The funding has decreased as earlier surpluses were depleted and we reached steady state funding. Despite this, well plugging efforts continue to post impressive numbers as a result of the program, with 2,806 wells plugged in 2001 and 2,155 in 2002. More than 42,000 abandoned wells have been plugged since the program's inception in 1989 and more than 10,000 well water samples are collected and tested each year to help people determine the quality of their drinking water. Since the well renovation option was added to the program in 1997, more than 1,500 older wells have been renovated to prevent local aquifer contamination.

An expanded monitoring network is offering better data and protection to Iowa citizens. This period marked continued real-time monitoring for fine particulate matter and smog (ground-level ozone), and participation in a national smog mapping project. Several air pollution advisories were issued the morning of an unhealthy air quality day.

Together, these allowed citizens to take actions to protect their health, such as postponing exercise or other prolonged outdoor activity, especially for persons most at risk from symptoms and potential damage to heart and lungs. All of the information such as real-time data and weather forecast-like radar maps showing smog levels are available on the Internet.

Iowa continued reporting daily air quality levels using the new national Air Quality Index (AQI) to enhance the understanding of air quality, health effects and risks of exposure. The AQI is divided into categories with health descriptors corresponding to each air quality level.

Like most states, the vast majority of days in Iowa fall into “good” to “moderate” air quality conditions for most common pollutants. Several days of unhealthy air were experienced in both local and widespread geographical areas across Iowa. Particulate matter (soots and chemical aerosols) and ozone smog are the two most widespread and common pollutants of concern in Iowa among those monitored.

Emissions Inventory

The DNR began a three-year emissions inventory effort to learn the quantity of emissions that enter Iowa’s air and the sources of emissions. The study began with 30 eastern Iowa counties and will expand to central and western Iowa during the next two years. Nearly 200 substances are under study. The state is doing much of the work, estimating emissions from mobile sources, consumer product use and small but numerous area sources. About 600 medium-sized businesses were also sent a detailed inventory form. The state provides assistance to businesses to complete the inventory.

Vehicle Emissions

The DNR launched a voluntary vehicle cleanup program called the Smoking Tailpipe Program. Citizens can call 1-888-END-SMOG to report license numbers of Iowa vehicles with excessive exhaust. The vehicle owner is sent educational materials to help them make an informed decision about the benefits of vehicle maintenance. The choice to make a repair is left to the owner. Mobile sources release more than half of all toxins into Iowa’s air and even higher percentages of smog-forming gases. Excess smoke indicates mechanical malfunction and repairs often result in increased fuel economy, longer engine life and avoided costs for more extensive mechanical repairs if ignored.

In the summer of 2002, the state joined a public-private partnership to reduce harmful diesel school bus emissions. Voluntary emission testing provided at no charge to the state or schools began with nearly 93 percent of schools participating. Emissions data is given to the schools, so mechanics can target their attention on the highest emitting buses. The effort is reducing emissions, saving fuels and helping districts avoid costly engine replacements and catching mechanical failures that are still under warranty.

Leaf and Garbage Burning Education

The DNR aired educational radio ads during the fall to encourage Iowans to find cleaner, safer disposal methods for lawn and home wastes. Grants paid for the funding. The campaign was prompted by a state goal under Healthy Iowans 2010 to increase the number of communities with open burn bans to help control asthma attacks.

Toxic Air Pollution

The DNR has increased concern about unmonitored and largely unregulated toxic chemicals, after federal studies indicate long-term exposure is posing unacceptable risks for serious health effects – cancers, birth defects, genetic damage and impacts to bodily systems. Several surrounding states have established toxics monitoring and regulatory control efforts. In Iowa and for air pollution programs

across the nation, concerns are increasing about several persistent, bio-accumulative toxins that may take decades or centuries to break down. Several are accumulating in food chains and in the environment, posing increased developmental risk and other concerns when consumed. Many emission sources derive from preventative activities, such as homeowner burning of plastic and synthetic refuse. The state began a limited toxics monitoring effort.

Air Permitting

Construction permit issuance time frames have reduced dramatically to less than 60 days, compared to six months, during the mid-1990s. This average does not include delinquent “as-built permits” or more complex permits for

major new facilities or expansions. These permits average five to seven months, including the mandatory one-month comment period. When the EPA issued permits in Iowa, the turnaround time was 12-18 months.

Technical Assistance

The DNR continues to fund the Iowa Air Emissions Assistance Program (IAEAP) at the University of Northern Iowa. IAEAP offers technical assistance to help small businesses comply with air regulations. The department also funds the Air Quality Liaison for Small Businesses to assist small businesses in working with air pollution-related agencies. Local air control programs in Polk and Linn counties are funded in part by the DNR.

LAND QUALITY

Contaminated Sites

“Contaminated sites” are properties known or suspected of being contaminated with hazardous materials. Many were created years ago and the responsible businesses are no longer functioning. The DNR attempts to conduct preliminary screening of such sites to identify those posing the most serious threat to public health and the environment. The majority of the sites pose some threat; however, few qualify for placement on the National Priority List (NPL). In FFY, 52 sites had an Initial Site Screening completed, 4 sites had an Extended Site Screening completed, and 1 site was the subject of a Preliminary Assessment/Site Investigation. None qualified for NPL listing.

Contaminated sites can also be addressed and/or cleaned up under the DNR’s Land Recycling Program (LRP). Rules for this voluntary cleanup program became effective on October 28, 1998. Enrollment in the program is voluntary; however, certain rules must be followed to successfully complete the program and receive the benefits associated with completion. Currently, 33 sites are enrolled in the LRP. It is anticipated that this number may soon increase as a result of the DNR entering into a Memorandum of Agreement (MOA) with EPA for the LRP. This MOA effectively means

that EPA agrees not to take action in cases where DNR has signed-off under the LRP.

In 1993, Iowa utilities and the DNR initiated a cleanup program of “coal tar” sites – a residue from power plants that manufactured gas from coal. Many sites became significant depositories for the material. There are currently 27 sites in this program while 13 of these sites have been transferred to the LRP. The department also assists EPA in their oversight of other sites in Iowa.

Solid Waste

The department issues permits to regulate the construction and operation of solid waste and disposal facilities. At the end of FY 2002, 273 solid waste management facilities had been permitted. The break down of the types of facilities is as follows:

- 93 operating landfills (including industrials)
- 52 closed landfills
- 31 solid waste transfer facilities
- 7 solid waste incinerators
- 31 land application permits
- 14 household hazardous materials collection facilities
- 10 permitted composting facilities
- 11 recycling facilities
- 10 reuse (soil, wastes, exempt materials)

- 5 tire processing facilities
- 9 other facilities

During 2001, 16 permits were issued for new facilities and 41 waste permits were renewed. In 2002, 10 new facility permits were issued and 57 renewed.

Underground Storage Tanks

The Underground Storage Tank (UST) Section focuses on the prevention, detection, and assessment and cleanup of releases from USTs storing petroleum products and hazardous substances. The UST program began in 1986 under the Groundwater Protection Act with UST registration. Registered, regulated tanks are issued tags that must be attached to the tank's fillport. It is illegal for transporters to deliver product to tanks without tags.

The department regulates 7,800 active tanks at 3,000 sites. The UST Section regulates tank installation, operation, maintenance and permanent closure. Through an interagency

agreement, the department has contracted with the Iowa Comprehensive Petroleum UST Fund (Board) to permanently close tanks at sites where the owner is financially unable to pay for permanent tank closure and also cleanup or corrective action if contamination is encountered. The Fund also includes sites in which owners are recalcitrant in meeting permanent closure or RBCA requirements.

When petroleum contamination is discovered, it is evaluated using Risk Based Corrective Action (RBCA). Corrective action response includes a broad range of options including reduction of contaminant concentrations, monitoring of contamination, and use of technological controls or institutional controls.

Over 6,000 contaminated sites have been confirmed. There are 2,078 active LUST sites. Nearly 4,000 sites have received a *No Further Action* (NFA) classification.

WASTE MANAGEMENT

Since the Waste Management Assistance Division was created in 1988, Iowa's recycling infrastructure has expanded dramatically and the benefits of pollution prevention, waste reduction and recycling are increasingly evident.

Financial Assistance Team

The Solid Waste Alternatives Program (SWAP) suffered a financial setback in fiscal years 2001 and 2002. In 2001, legislation passed to assist low income Iowans with their heating bills resulted in a loss to the program of \$3,377,888. And in 2002, \$4.2 million was swept to help balance the state budget. Because of these financial reductions, SWAP was forced to cancel two competitive rounds to recover funds.

Even with the financial setback, SWAP made every effort to maintain its viability and awarded funding for 45 projects in 2001 and 26 projects in 2002. More than \$4.8 million was awarded in 2001, and more than \$2.3 million was awarded in 2002. SWAP was able to use the funding reduction as a way to maintain program sustainability. In 2001, 36 percent of awarded funds came back to the Department as loan repayments and in 2002, the percentage increased to 54 percent.

Regional Collection Centers

Regional Collection Centers (RCC) are permanent facilities for the temporary collection, processing and storage of household hazardous materials and hazardous materials from conditionally exempt small quantity business generators. Satellite facilities serve the role of collection facilities within the RCC service area until the materials are transported to the main facility for processing, reuse and disposal. The purpose of regional collection centers is to educate the public about proper purchase and management of household hazardous materials and provide ongoing access to proper disposal of hazardous materials for which alternative uses are not available.

At the beginning of FY 2001 there were 11 RCC facilities in operation serving 42 counties. Due to the transfer of funds from the Groundwater Protection Account to the General Fund, no establishment grants were awarded. However, two main facilities and several satellite facilities were opened due to establishment grants awarded during FY 2000. More than 1.85 million pounds of hazardous materials were collected for reuse, recycling or

proper disposal.

By the close of 2002 two new facilities were established. There were 13 main RCC facilities in operation providing proper disposal opportunities to urban and rural households and eligible small quantity business generators in 59 Iowa counties. Nearly 2.1 million pounds of hazardous material were properly managed through the regional collection center program.

Toxic Cleanup Days

Toxic Cleanup Days (TCD) are one-day county events where urban and rural households can bring their household hazardous materials and farm waste for proper management. Toxic Cleanup Days are available to households and farms only in counties not currently served by a regional collection center or satellite facility.

The Department offers funding for TCDs through competitive grants. Participating counties are required to provide a cost share for disposal costs, provide volunteers to staff the event, publicize the event and educate the citizens of the county on proper management of household hazardous materials. A hazardous waste company is contracted by the Department to provide collection, transportation and disposal services.

In 2001, five TCDs were held collecting 21,000 pounds of household hazardous materials. The number of pounds collected did not include wastes collected but managed locally. These materials include motor oil, lead-acid batteries, latex paint and antifreeze.

Three toxic cleanup day events were held in 2002. These events collected 20,700 pounds of hazardous materials from urban and rural households and farms.

Pollution Prevention and Business Assistance Team

Waste Reduction Assistance Program

The Waste Reduction Assistance Program (WRAP) provides free, non-regulatory, confidential technical assistance to large Iowa businesses and industries to reduce waste, prevent pollution and enhance operational efficiencies. Since 1990, WRAP has assisted 214 facilities and held 67 workshops for clients to assist them with ongoing waste reduction and pollution prevention efforts.

In 2001, WRAP helped Iowa organizations by identifying \$10.2 million in potential cost savings and 15,415 tons of solid and hazardous waste reductions. WRAP also identified 7.5

million kWh of energy savings for these clients and water saving measures totaling 2.1 million gallons. In 2002, WRAP assisted Iowa organizations by identifying \$2.7 million in potential cost savings and 2,579 tons of solid and hazardous waste reductions. WRAP identified water saving measures totaling 66.1 million gallons and energy savings of more than 3.2 million kWh for these clients.

Regulatory Integration

As of FY 2002 regulatory integration efforts have helped Iowa organizations identify \$900,000 in potential cost savings and 1,180 tons of solid waste reductions. Water savings measures of 15.5 million gallons were identified as well as 2.7 million kWh of energy savings.

Pollution Prevention Intern Program

Early in FY 2002, results were received from the first year of the Pollution Prevention Intern Program, 14 students were matched to 14 companies committed to making operational improvements to accomplish a waste reduction goal. (See table on page 16.)

Recycling Technical Assistance Team

The Recycling Technical Assistance Team aids in every part of the recycling "loop," from collection through processing and purchasing. The team provides technical assistance and communicates state-of-the-art information among customers. In 2001 and 2002, the team was a national leader providing direction and information on cutting-edge solid waste-related issues including product stewardship, electronics recycling, construction and demolition materials management, and sustainable building design.

Buy Recycled Business Alliance

The Recycling Technical Assistance Team continues to stress the importance of buying recycled by assisting the Iowa Department of General Services to acquire their first full-time environmentally preferable products purchasing agent, by partnering with the Department of General Services to initiate the Iowa Sustainable Design Initiative and teaming up with the Iowa Department of Transportation and Iowa State University to promote compost use for erosion control and storm water management.

Iowa Solid Waste Characterization Study During fiscal year 2001 the Recycling

Actual Cost Savings and Pollution/Waste Reductions at Iowa Companies from Recommendations Implemented.

Categories	Reduction	Cost Savings
Water Conservation	115,427,000 gallons	\$234,000
Special Waste	175 tons	\$839,000
Solid Waste	314 tons	\$92,000
Hazardous Waste *	4,925 gallons	\$45,800
Energy Conservation	162,000 kWh	\$ 6,000
Inventory System		\$300,000
TOTAL:		\$1,516,800

* Does not reflect savings from reduced purchase costs of hazardous chemicals

Actual and Potential Cost Savings and Pollution/Waste Reductions for Iowa Companies from Recommendations Implemented and Suggested.

Categories	Reduction	Cost Savings
Water Conservation	1,248,255,000 gallons	\$1,224,000
Special Waste	17,500 tons	\$1,689,000
Solid Waste	350 tons	\$ 98,000
Hazardous Waste *	100,500 gallons	\$ 113,800
Energy Conservation	11,600,000 kWh/Btu	\$1,484,500
Inventory System		\$ 750,000
TOTAL:		\$5,359,300

* Does not reflect savings from reduced purchase costs of hazardous chemicals

Technical Assistance Team assisted the Iowa Department of Economic Development's Recycle Iowa Office in completing an analysis of the economic impact of Iowa's recycling industry on the state's economy. In fiscal year 2002, the team lead a successful effort to establish baseline data on the amounts and types of electronics waste generated in Iowa, how those items are currently managed and the best options for Iowa to establish a state wide collection infrastructure for electronic items at their end-of-life.

On-Line Data Access

The Recycling Technical Assistance Team coordinates databases from the Recycle Iowa office, the Iowa Waste Exchange, and the Waste Management Assistance Division. The integrated database serves as a marketing tool for Iowa companies looking to expand, as well as new companies considering locating here. In fiscal year 2002 the team partnering once again with the Department of Economic Development's Recycle Iowa Office initiated the process to make the database available via the internet in 2003.

Iowa Waste Exchange

Since 1990, the Iowa Waste Exchange has helped Iowa companies divert more than 720,000 tons of materials from Iowa landfills, while

saving Iowa companies more than \$20 million in disposal costs.

Policy Development

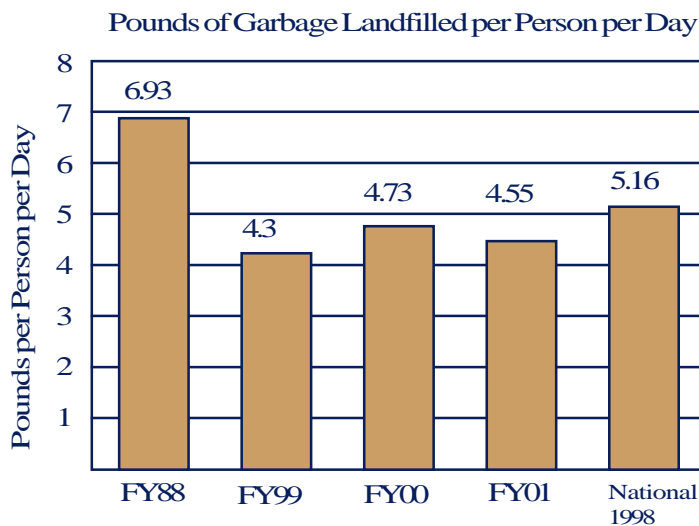
In FY 02, the team organized a comprehensive group of stakeholders to update Iowa's successful bottle deposit law and began the initial organizing of a state wide task force to address demolition debris management policy in Iowa.

Organics Recycling

During fiscal years 2001 and 2002 the team joined with a variety of partners to develop organics compost facility rules that while providing producers increased flexibility established best management practices for organics recycling processes. Specific efforts included conducting research with Iowa State University and the Department of Transportation to show the value of using compost for erosion control and vegetation establishment, partnering with the Iowa Recycling Association to host a series of informational programs for organics recyclers and developing a database of Iowa companies generating and using wood by-products.

Solid Waste Comprehensive Planning and Special Projects Team

The DNR assists cities, counties and sanitary disposal projects with preparing comprehensive plans. The plans describe plan participants' integrated solid waste management systems, waste reduction strategies and disposal methods. After an initial plan is approved, planning areas must update them at least every three years. Part of updating is determining the amount of waste diverted since 1988. As a whole, Iowa reduced



This graph represents the number of pounds landfilled per person per day for Iowa and the United States. Landfilled waste in Iowa has grown by 0.43 pounds per person per day since the last time these figures were presented, but still represent a significant drop from the nearly 7 pounds per person per day landfilled in 1988. All waste diversion measurements for Iowa are based from 1988. National figures are derived from *Characterization of Municipal Solid Waste in the United States: 1998 Update* (Franklin Associates, August 1999) and *Characterization of Building-Related Construction and Demolition Debris in the United States* (Franklin Associates, June 1998). Iowa figures are derived from planning area goal progress reports.

solid waste by 35 percent, which is higher than the national average (27 percent). The state's goal was to reach 50 percent reduction by 2000.

In 2000, with the assistance of an advisory committee, DNR updated plan requirements to better serve the state's maturing integrated waste management systems. As part of the revisions the comprehensive plan update deadlines have been spread out more evenly across the three-year period and planning areas will be required to submit a portion of the required information online. The fourth round of comprehensive solid waste plans for municipal solid waste landfills were due beginning July 1, 2001. Since that time 23

plans have been received, 19 of those have been approved.

Waste Tires

The DNR's waste tires program works to clean up stockpiles and provide markets for the three million waste tires Iowa generates each year.

Waste Tire Management County Grant Program

In 2001, \$962,306 in grants to 70 counties was awarded. As a result, 500,000 waste tires were recovered through community collections. In 2002, the program awarded \$692,276 in grants to 57 counties, resulting in 300,000 recovered waste tires.

Waste Tire Stockpile Abatement Program

In 2001, this program awarded \$2,750,000 to contractors for the cleanup of 3,300,000 waste tires, resulting in dismantling 17 nuisance tire stockpiles. In 2002, \$5,213,929 was awarded, which helped to clean up 3,900,000 waste tires and dismantle 35 nuisance stockpiles.

Regents Tire-Derived Fuel Program

Through this program, the University of Iowa consumed 170,000 waste

tires as fuel in 2001; the University discontinued the use of tires as fuel in 2002.

Waste Tire End-Users Program

This program awarded \$268,000 to two end-users in 2001, expanding instate markets that consumed more than 2.2 million waste tires through this incentive program. In 2002, \$142,487 was awarded to seven end-users, with more than 2.83 million waste tires consumed.

Environmental Assessments

Protection of surface water and groundwater resources are a principle focus for the Iowa Geological Survey (IGS). Reviewing construction permit applications and manure management plans for confined animal feeding operations comprised a significant effort for the IGS staff during FY01 and FY02. Geographic Information System (GIS) applications were heavily relied upon to assess the ability of soils and shallow subsurface sediment to accommodate proposed land spreading of nutrients.

Similarly, rules requiring environmental assessments around leaking underground storage tanks resulted in weekly requests for information on nearby water wells. Approximately 150 well search reports were prepared monthly.

Source Water Protection

A voluntary program has been developed to help communities identify how to protect their wells from possible contamination. The plan involves a significant educational component to help citizens understand where their water comes from, how it gets to the well, and what could cause potential contaminant threats to the well water. Communities will implement their protection plans, aided by information provided by the DNR. To date, informational meetings have been held and published materials have been distributed to communities in the northwest quadrant of the state.

Pesticides in Iowa's Waters

A study of pesticides in Iowa's groundwater and surface waters has been completed. Data used in the study spans the period 1980 through 2000 and includes results from more than 13,000 groundwater analyses at 3,850 sites, and nearly 7,000 surface water analyses at 530 sites. Herbicides were found in 26 percent of groundwater samples and 78 percent of surface water samples, but insecticides were found in less than .5 percent of groundwater and 1 percent of surface water samples. Drinking-water guidelines were exceeded in 3 percent of groundwater and 14 percent of surface water samples. During the period, 51 different pesticide compounds were

detected; this includes 37 each from groundwater and surface water. Pesticides may be found throughout the year, but the detection rates are highest in June and July and lowest in December and February. The most commonly detected pesticides throughout the period were all herbicides – atrazine, cyanazine, metolachlor and alachlor. Data in more recent years show an increase in new herbicide compounds such as acetochlor, dimethenamid, and a class of low-use rate compounds call sulfonyleureas. Additionally, the break-down products of the older herbicide compounds alachlor and metolachlor are proving to be more persistent in the environment than previously thought.

Contamination was most common in three groundwater environments – shallow bedrock aquifers in northeast Iowa, alluvial aquifers and glacial drift aquifers. The surface water basins showing the highest percentage of detectable pesticides are the Cedar River and Iowa River basins and the river basins of northeast Iowa. Significant decreases are occurring for atrazine and cyanazine in both groundwater and surface water. Alachlor is decreasing in groundwater, but not in surface water. Metolachlor shows no significant change, although locally it may be increasing.

The Iowa Department of Agriculture and Land Stewardship and U.S. EPA supported the study.

Geological Mapping

Geological mapping of shallow surficial materials was completed in four counties on the Des Moines Lobe (DML) in north-central Iowa (Boone, Story, Humboldt, and Dallas counties) and portions of Johnson County (Ely and Swisher 7.5" topographic quadrangle maps). The surficial geologic maps and GIS databases for the Des Moines Lobe area will be used to develop county-specific information for land-use planning and groundwater susceptibility. In addition, several areas of the state are quickly changing from rural agricultural counties to metropolitan areas. These counties face rapidly expanding residential and commercial development. By identifying the types, properties, and distribution of glacial landforms and their associated sediments, the DNR can better predict contaminant fate and transport in

shallow groundwater. Geologic mapping of surficial materials provides a better understanding of surficial sediments, ultimately aiding in environmentally sound management and informed land-use planning decisions. The information will be used with other data in the Natural Resources Geographic Information System to analyze environmental issues and to print paper maps. Other derivative maps can be generated, including a bedrock geologic map, a bedrock topographic map, a surface materials thickness map, a groundwater vulnerability map and a mineral resources map. The project has been a cooperative effort with partial funding from the U.S. Geological Survey.

Water Quality Monitoring

The DNR program was greatly enhanced with the appropriation of \$2 million in FY01 and FY02 for water monitoring. This appropriation from the Environment First portion of Iowa's Infrastructure Fund represents the first significant state funding ever allocated to monitor water quality of the state's waters. The new allocation constituted a significant improvement in the collection, management and interpretation of water quality data on Iowa's water resources.

Based on the vision laid out in the Water Monitoring Plan 2000, monitoring of Iowa's streams, lakes, and groundwater was expanded in several ways. For the first time, streams are monitored upstream and downstream of Iowa's 10 largest cities in order to document the impact of urban areas on our waters. During 2002, this monitoring also included the first examination of antibiotics, pharmaceuticals, and non-prescription drugs in Iowa's waters downstream of municipal wastewater treatment facilities. Lake monitoring also began in FY01 with the objective of the program being to characterize the water quality in 132 of Iowa's principle recreation lakes. Measurements include water clarity, water chemistry, nutrient levels and the presence of commonly used pesticides. This monitoring will help resource managers make decisions on how to improve lake conditions for recreation, fishing, and drinking water quality. In addition, beach monitoring on 35 state-owned beaches began in 2000 and continued through the summer of 2002. Beaches were closed to swimmers if the number of bacteria exceeded guidelines established by the U.S. Environmental Protection Agency. Results from the beach-monitoring program, indicate that levels of

bacteria at Iowa's state-owned beaches are acceptable for swimming more than 95% of the time, with a small number of beaches experiencing chronic bacteria problems.

Since 1992, the Iowa Department of Natural Resources, the United States Geological Survey, and the University of Iowa Hygienic Laboratory have cooperated in a groundwater-monitoring program testing 90 municipal wells from across the state. While these wells provide a good basis for determining long-term trends in groundwater quality, they lack the ability to provide in-depth information on a particular groundwater source. To enhance that aspect of the program, an additional 60 wells are randomly selected from the various groundwater sources and added to the annual monitoring regime. During FY02, the first groundwater source sampled more intensively was the Mississippian Aquifer. The Mississippian groundwater source is widely used in the north-central part of the state as a drinking water source. It may be locally impacted by drainage wells that inject surface water to the underlying rock. This intensive monitoring provides a more regional picture of the groundwater quality for the state. Additionally, in order to better understand the quality of water in specific groundwater layers, new wells must be drilled to isolate the groundwater for sampling. Two dedicated monitoring wells were drilled in FY01 and FY02 and located in Briggs Woods in Hamilton County and Rutland Marsh in Humboldt County. These monitoring wells were located to compare the impacts of agricultural drainage wells. The Briggs Woods well is located in an area without drainage wells, while the Rutland Marsh well is in an area of several known drainage wells and will help to detect potential impacts from these drainage wells and potential improvements should the wells be closed. Through time, the development of more monitoring nests will fill in gaps in our knowledge regarding Iowa's groundwater resources.

One of the highest priorities for the water-monitoring program is improving the data management of and access to water quality information in the state. During the FY01 and FY02, more than 200,000 pieces of data were entered into the Department's water quality database called STORET. To make this data quickly and easily accessible to decision makers, agency staff, and the public, a web interface was created to streamline the delivery of data. All newly collected information goes directly in the database and efforts to migrate

historical data from paper to the database are on going.

Citizen Monitoring – IOWATER Program

The fast-paced growth of the citizen-monitoring program continues to demonstrate the motivation of Iowans to improve the state's water quality. By July of 2002, more than 1,300 citizen volunteers had been trained in the basic elements of water quality monitoring (Level 1). An additional 250 volunteers went on to Level 2 training, which provides a more in-depth look at Iowa's water quality protection programs. Two

additional modules, or shorter workshops, were added during FY01 and FY02: The Secondary Educator's module and The Water Ecology Module. The secondary educator's workshop was added in response to the large number of teachers that were beginning to include IOWATER testing as part of their classroom activities. The Water Ecology module demonstrates the linkage between water quality and the health of water ecosystems. Topics such as how nutrients move and cycle within the natural world and influence water quality has on aquatic organisms are addressed within this module.

E NERGY

Building Energy Efficiency

The Building Energy Management program works to implement all cost-effective energy management improvements in Iowa's public-sector facilities. With an anticipated investment of \$500 million, this program will save taxpayers an estimated \$80-90 million in annual energy costs.

The Energy Bank continues to assist participants in identifying and installing energy-management improvements. The program's goal is to implement cost-effective energy management improvements, using private funds in combination with minimal state and federal support. Since its inception in 1989, the program has leveraged \$5.5 million of federal funding into \$170 million in implemented energy improvements with total savings of \$173 million to Iowa's taxpayers.

The Iowa Energy Bank continues to achieve substantial financial results for the state's schools, hospitals, local governments and private colleges. In 2001 alone, Iowa's Energy Bank program implemented more than \$6 million in energy improvements with total annual savings in excess of \$600,000 to Iowa's taxpayers.

In 2002, Energy Bank clients implemented \$7.2 million in improvements, with annual savings in excess of \$550,000.

The DNR continues to make available an electronic Small Building Energy Audit designed with small local governments in mind. The audit is for facilities with less than 5,000 square feet and residential-sized heating and cooling systems. This easy-to-use program provides

accurate analyses based on engineering calculations, while allowing facility staff to analyze and project the financial impact of energy improvements.

The State of Iowa Facilities Improvement Corporation (SIFIC) is a nonprofit corporation providing state agencies with lease-purchase financing for energy-efficiency improvements. Because of the financial success of the program, the original bond issue was called in for early redemption. To date, SIFIC has saved state agencies and Iowa taxpayers more than \$77 million in energy costs through \$40 million in energy improvements.

Rebuild Iowa helps communities improve energy efficiency, promote community development, and establish a path for economic and environmental sustainability. Communities that join Rebuild Iowa integrate local, state and federal resources to secure the economic and environmental benefits of energy efficiency. To date, Rebuild Iowa has leveraged \$1.1 million in federal funding to implement \$9.3 million in energy improvements and save nearly \$1.3 million annually. Rebuild Iowa communities include Cedar Falls, Webster City, Muscatine and Winnebago, Worth, Hamilton and Polk counties.

Homegrown Energy

Transportation Fuels

The market share of ethanol-blend fuels continued to grow, rising above 53 percent of all gasoline sold in Iowa during 2002. This is an 8 percent increase since 2000. Eight retail E85 (15 percent gasoline) stations continue to

operate in Iowa, complementing the eight stations owned by state facilities. In 2002, more than 250,000 gallons of E85 were sold in Iowa. The state vehicle fleet has more than 460 E85 vehicles, well ahead of state and federal requirements.

With a new biodiesel production facility in Sergeant Bluff, the fuel is beginning to develop a market share. More than 150 stations in Iowa now sell a premium diesel blend that includes biodiesel. Additionally, several private fleets are using biodiesel fuel to meet federal alternative-fuel vehicle requirements.

Wind

Fiscal Year 2002 saw another large increase in wind energy installations in Iowa history. During 2002, a wind farm with 89 1MW turbines started construction. There are now more than 400 wind turbines operational in Iowa with combined capacity of more than 350 MW.

Several Iowa school districts have researched and adopted wind power. Through the DNR's Iowa Energy Bank Program, school districts such as Akron-Westfield and Forest City have each installed 600kW wind turbines. The Spirit Lake Community School District has installed a second turbine (750kW). Because of the success of these projects, schools districts across Iowa including Clarion-Goldfield, Eldora-New Providence, Emmetsburg and Earlham are at various stages of identifying and installing wind turbines.

Biomass

Iowa's switchgrass initiative has received international recognition and continues to move forward. More than 4,000 acres are now planted with switchgrass. Studies on the growth, harvest, storage, impact on water quality and wildlife habitat have been completed. Test burns to co-fire coal with switchgrass planned at the Ottumwa Generating Station were completed in winter of 2000 and 2001. The next round of test burns is planned for 2004.

Methane Energy Recovery

The Methane Energy Recovery Program continues to move forward. The DNR completed four methane energy recovery demonstration projects and a livestock waste characterization study. The demonstration projects focus on both swine and dairy operations. Projects cover the construction, operation, maintenance, research and

evaluation of energy generation and heat recovery systems using methane gas recovered by anaerobic digestion. The livestock waste characterization study provides a county-level evaluation on the type of livestock, waste levels, and the amount of energy content available from the various waste streams.

Renewable Energy Guide

The Iowa Renewable Energy Resource Guide was updated in 2002 to reflect current renewable energy assessment and project activities.

Agricultural Energy

Management

The DNR continues to work with Iowa State University and the Iowa Department of Agricultural and Land Stewardship in monitoring saving resulted from previous agricultural energy management programs.

Greenhouse Gas Mitigation

The DNR received a grant from EPA to update the greenhouse gas inventory completed in the early 1990s. This work will be completed in 2004.

NATURAL RESOURCES

FORESTS AND PRAIRIES

Iowa possesses 2.6 million acres of forestland, with 92 percent of these forests in private ownership. Iowa's forests of oaks, hickories, maples and cottonwood provide more than \$85.8 million in benefits to all Iowans in terms of soil erosion control, air quality and water quality protection, wildlife habitat and economic gain from sales of native hardwood lumber. More than 7,000 Iowans are employed in the wood products industry bringing more than \$20 million in annual economic sales, and providing more than \$12 million to private woodland owners each year from the sale of their timber. Efforts of the Forestry Bureau are to sustain and enhance the environmental and economic values of Iowa's forests through private forestry technical assistance, education opportunities for adult and youth and demonstration of sustainable forest ecosystem management on public lands.

State Forest Nursery

First established in the 1930s, the State Forest Nursery, located in Ames, grew and distributed 3.7 and 5.5 million bareroot conservation tree and shrub seedlings to private landowners and government agencies in 2001 and 2002 respectfully. Nursery operations are run in cooperation with the Iowa Department of Corrections (DOC) to provide work opportunities for inmates at the Rockwell City and Fort Madison facilities. Since 1982 the DNR began leasing land from DOC at the Montrose farm for growing seedlings providing more than 60 inmates daily work opportunities. State nursery facilities are also made available to researchers at Iowa State University Forestry and Horticulture departments. The State Forest Nursery operation runs on the costs of production and does not use any general tax funds to produce native seed source conservation trees and shrub seedlings. In addition, the sales of State Forest Nursery conservation seedlings produce revenue to hire five additional foresters who provide technical assistance to private landowners who wish to plant new forests or improve existing forests.

State Forests

Iowa's state forests are some of the largest contiguous tracts of public land in Iowa. Iowa's state forests are managed to demonstrate sustainable forest management practices that yield forest products, wildlife habitat, soil and water protection, protection of unique plant and animal communities and outdoor recreational opportunities. Major outdoor recreational opportunities offered on Iowa's state forests include: hiking, picnicking, hunting, fishing, camping, cross country skiing, equestrian and snowmobiling. Snowmobiles and equestrian use is restricted to designated trails. Iowa's state forest system of 43,547 acres is comprised of four large state forests (Yellow River-NE, Stephens-SC, Shimek-SE and Loess Hills-W), and range in size from 8,503 to 13,689 acres and 6 smaller units. Area foresters are finishing mapping forest stands for improved management, to identify and protect sensitive areas and to track forestry practices. Through demonstration forest management efforts, Iowa's state forests provided 43,800 board feet of lumber to state agencies worth \$56,000, sold 225,490 board feet in 2001 and 86,573 board feet in 2002 to local wood industries providing \$87,676 in 2001 and \$47,231 in 2002 to the State's general fund. A facilities modernization of the sawmill at Yellow River State Forest, and a visitor center with educational displays at Loess Hills State Forest were completed.

District Forestry Program

The division's 13 district foresters promoted the division's forest stewardship program through management planning, promotion and cost-share administration with a focus on conservation of CRP lands into permanent forest cover. Forestry assistance was provided to 949 woodland owners in 2001 and 1,138 in 2002, resulting in an additional 41,663 acres in 2001 and 41,436 acres in 2002 being brought under improved forest management. New forest plantings to improve water quality, control soil erosion and enhance wildlife habitat

increased by 8,064 acres in 2001 and 14,436 acres in 2002. Iowa's private forest landowners were assisted with forest stand improvement efforts on 9,011 acres in 2001 and 9,747 acres in 2002. Private lands prairie reconstruction and remnant management assistance was given to 419 landowners involving 12,930 acres. Special efforts to work with farm and other private woodland owners through federal cost-share programs of Environmental Quality Incentives Program (EQIP) and Conservation Reserve Program (CRP) were a high priority for district forestry staff in cooperation with USDA. Training and educational sessions for more than 500 woodland owners and businesses were held each year.

Urban and Community Forestry

The division's urban and community forestry program in cooperation with the Iowa Urban and Community Forestry Council provides technical assistance, education, training, volunteer coordination and recognition to communities across the state. In 2001, 518 communities received direct technical assistance, including completion of 35 comprehensive community tree inventories and management recommendations. In 2002, 594 communities received direct technical assistance. Tree City USA designations were given to 119 communities in 2001 and to 123 communities for 2002, ranking Iowa 6th in the nation in total number. Forty Iowa communities received the "Tree City USA Growth Award" for going beyond basic requirements, making Iowa number one in the nation in this category in 2002. An estimated 600,000 trees were planted through various community forestry efforts in 2001 and again in 2002. In cooperation with Iowa State University Extension Forestry, more than 40 one-day workshops on tree planting and care were given each year. In addition, the highly regarded "Community Tree Steward" program, where volunteer leaders get 24 hours of intensive training and give back at least 24 hours in community service, had 51 graduates in 2001 and 51 in 2002. To date, the program has trained 513 volunteers who have given more than 18,000 hours in community service.

The division worked with the Dunbar/Jones PLC to continue a community tree planting grant program called "Million More by 2004." A total of \$250,000 in state funds helped 83 community projects in 2001 plant 4,952 landscape trees and 94 projects in 2002 plant

5,049 landscape trees on city, county and school properties across the state. Local governments matched these funds with more than \$1,024,000.

A new partnership was developed with Alliant Energy to establish a residential tree planting program for Alliant Energy customers to reduce energy costs. The program called "Operation Releaf" uses a donation from Alliant Energy to hire a coordinator, purchase trees and develop local partnerships with county conservation boards and resource conservation and development areas to supply locally purchased landscape trees at half-price. During 2002, more than 21 projects sold 8,437 landscape trees worth more than \$389,000 to 3,714 Alliant Energy customers. Similar projects were held in Polk and Pottawattamie counties using different funding sources supplying 1,600 and 2,400 landscape trees respectfully to county residents for residential beautification. Surveys of participants show that more than 30 percent of the people had never bought or planted a tree before. More than 45 local nurseries and garden centers in Iowa supplied the plant materials.

Education

The Trees For Kids program, a cooperative tree education and planting program for elementary and secondary schools completed its 12th year. Donations and grants for the program were received from MidAmerican Energy, Aquila, Alliant Energy, Iowa Nursery and Landscape Association, Iowa Bankers Association, Trees Forever, Iowa Society of American Foresters, Iowa Tree Farm Program, USDA Forest Service, Cascade Forestry and Iowa State University Extension Forestry.

Trees For Kids and its secondary school companion, Trees For Teens, provides no-cost original education materials to teachers and students and helps them get free trees to plant through local Iowa Nursery and Landscape Association and Iowa Bankers Association members. In 2001, more than 9,414 teachers participated, working with 350,000 Iowa students who in turn planted more than 74,000 trees on school grounds worth an estimated \$3.2 million. In 2002, more than 10,250 teachers and 375,000 Iowa students planted more than 108,000 trees on school and other public grounds worth an estimated \$4.1 million.

For schools without room to plant trees, an alternative program called "Reading Rangers" was developed. The DNR planted a tree at one of four state forests for every 20 pages read by students during Earth Week. In 2001, more than

123,701 pages were read and 6,157 trees planted, and in 2002 more than 142,631 pages were read and 7,112 trees were planted. An Arbor Day Poster contest for 5th-grade students was held for the seventh year, with more than 550 art teachers participating with their students. The top three posters were awarded savings bonds, thanks to the Hawkeye Chapter of the Telephone Pioneers. DNR foresters gave 185 different hands-on presentations involving 12,992 students to establish more than 1,600 new landscape tree plantings at schools across the state.

Forest Health

Forest lands were monitored for serious insect, disease and environmental problems. Aerial surveys of 315,000 acres along with ground confirmation were conducted. Bureau foresters are working with impacted landowners on appropriate salvage opportunities and reforestation efforts in areas identified with oak wilt, Dutch elm disease and ash decline. In cooperation with the state entomologists of the Iowa Department of Agriculture and Land Stewardship and the USDA, state foresters are assisting in gypsy moth surveying by placing and monitoring 900 gypsy moth traps in 38 western Iowa counties and Yellow River State Forest. The division also continued a “volunteer” survey program with more than 600 individuals increasing gypsy moth awareness and expanding survey areas. New forest health efforts involving invasive woodland plant species were initiated in cooperation with Iowa State University Department of Natural Resources Ecology and Management to document location and severity using trained volunteers. Invasive species awareness and education through development of an original Invasive species poster, video distribution and presentations were shared with organizations across the state.

Fire Protection

The division’s fire protection forester worked with 330 volunteer fire departments to provide excess federal military vehicles and equipment for rural fire protection efforts. To date, an inventory of 640 items worth \$11.3 million in fire equipment, exists throughout the state. In addition, the bureau provided 30,000 pieces of “Smokey Bear” fire prevention materials and costumes to rural fire departments to expand youth and adult education. In 2001 and 2002, more than \$223,000 worth of small wildland fire equipment and clothing grants for 210 volunteer fire departments were administered. The division participates in the Big Rivers Fire Compact with Illinois, Indiana and Missouri. The compact works to improve rural fire protection in the rivers area of the Midwest, coordinate wildland fire training opportunities for agency fire fighters and encourage use of prescribed fire as a viable forest and prairie management tool for ecological restoration and wildland fire mitigation.

Rural Development

In cooperation with the 17 Resources Conservation and Development (RC&D) areas, the 12th year of the Rural Development through Forestry (RDTF) program was completed. This program distributes \$100,000+ per year in matching federal funds to encourage economic development, such as the wine/grape industry, red cedar use and many other projects in rural Iowa by promoting the use of Iowa’s forest resources. Since the program began in 1991, a \$4 to \$1 ratio of total economic activity has been generated from the federal grant funds and more than 800 jobs created or retained. The division provided 297 and 407 wood industry assists in 2001 and 2002 respectfully. Foresters assisted Iowa private landowners with sustainable timber sales on 2,200 acres annually providing more than 6 million board feet of timber for local wood industry businesses.

PARKS, RECREATION AND PRESERVES

Restoring a Legacy in Iowa State Parks

The DNR is continuing its effort to repair, restore and renovate many of Iowa's finest park buildings, as well as upgrading sewer, water and electric utilities. The Restore the Outdoors Program has been essential to revitalizing these historic structures which represent the essence of the state park system. During the first six years, 32 parks have seen badly needed improvements to 77 major structures, including the renovation of 15 historic park lodges, 14 picnic shelters and 36 family cabins; the conversion of 10 beach houses for new uses; construction of 4 new cabins; renovation of trails statewide; and the upgrade of numerous sewer, water and campground electrical systems.

Major projects completed in FY2001 and 2002 include:

- Backbone Cabins – *4 new 2-bedroom cabins*
- Lake of Three Fires – *renovation and upgrade of 6 cabins*
- Geode – *shower building replacement*
- Brushy Creek – *new shower building*
- Brushy Creek – *new picnic shelter and rest room*
- Lake Manawa Open Picnic Shelter with kitchenette and rest rooms – *new construction*
- Viking Lake Campground – *complete redesign and renovation of sites, shower buildings, roads, etc.*
- Viking Lake Beach/Concession Building – *replacement and addition of a seasonal restaurant/rental lodge*
- Fort Defiance Lodge – *renovation*
- Lake Wapello Cabins – *renovation of 13 cabins*
- Wildcat Den Historic Grist Mill – *structural repairs and fire suppression system installation*
- Margo Frankel rest room and picnic shelter – *new construction*
- Clear Lake-The Ritz – *new picnic shelter and restroom*
- Education Center – *new roofs and kitchenette facility*

Backbone and Brushy Creek – *campground electric addition*

George Wyth, Waubonsie and Nine Eagles –

campground electrical upgrade
Rock Creek, Beed's Lake, Prairie Rose, Backbone, Lake Anita, Lake Wapello, Bellevue – *wastewater renovation/upgrade*
Backbone – *water distribution system*

Elinor Bedell State Park – The Newest Jewel in the Iowa State Park Crown

On Labor Day 2001, several hundred local residents gathered for the dedication of Iowa's newest state park, the first in 27 years. Elinor Bedell State Park's 80 acres lie on the eastern shore of East Lake Okoboji. The park's mix of grassland, wetland, woodland and lakeshore provide a much-needed addition to the array of public lands available to visitors to the Iowa Great Lakes. The land was a generous gift to the people of Iowa by Elinor and Berkley Bedell of Spirit Lake. The DNR prepared a master plan for park development that provides a mix of outdoor recreation facilities yet leaves much of the site in a very natural state. Several miles of both hard-surfaced and gravel trails traverse the site, providing access for walkers, bicyclists, and roller-bladers to experience reintroduced prairie, enhanced wetlands, oak savanna and lakeshore. A modern RV campground accommodates eight units. A beautiful open shelter overlooking the lake, features rest rooms as well as a kitchenette.

Honey Creek State Park Resort – Iowa's First Destination Resort State Park

In 2000, the concept of a destination state park was created. After a statewide assessment of all existing state park and state recreation areas, it was determined to pursue concept plans for such facilities at Brushy Creek State Recreation Area and on property adjacent to Honey Creek State Park on Rathbun Lake. A series of public meetings during the statewide assessment process and concept plan development made it clear that local public attitudes toward the Honey Creek site were overwhelmingly supportive. The Natural Resource Commission opted to

continue implementing the existing master plan for Brushy Creek (with an expanded and accelerated cabin development effort) and pursue the destination state park planning and development at the Honey Creek site.

The destination resort state park received one million dollars each year in fiscal years 2001 and 2002. Smith Group JJR of Madison, Wisconsin developed a master plan for Honey Creek Resort State Park including a concept plan for the wastewater system by Fox Engineering of Ames, Iowa. Extensive archaeological and biological surveying has been conducted which ultimately altered the original draft master plan to avoid adverse impacts on high quality natural areas and on state/federal listed threatened and endangered species. Economics Research Associates of Chicago, Illinois was hired to conduct a more detailed market analysis and cash flow projection for the lodge/conference center, golf course, family cabins and equestrian center proposed for development. Construction work is scheduled to begin on the primary park road at Honey Creek in 2003. Work continues on the park plan and creation of one or more public/private partnerships in the development of Iowa's first destination resort state park.

Interpretation

The interpretation program has continued to grow in the bureau. In 2001, 14 seasonal interpreters and full-time staff presented a number of programs to approximately 25,500 people across Iowa with the bulk of the programming during the recreation season. In 2002, 14 seasonal interpreters and full-time staff presented programs to approximately 28,304 people. In addition, 25 different state fair programs were given at the DNR courtyard covering a wide array of topics from outdoor cooking to grape growing. Most programs at the fair had an average attendance of 25 people and some of the very popular programs had well over 100 people attending.

CCC Oral History Project – The Men Who Built a Legacy

Although Iowa is a state that is predominantly known for its agricultural history, there is a strong history within the conservation and preservation movements. During the fall of 2001, the State Parks Bureau began an oral history project to document the contributions of the Civilian Conservation Corps, its members, and their stories in Iowa

during the 1930s and 1940s. Since that time, several hundred surviving members have been identified, and to date, more than 125 have been interviewed. In most cases, interviews were taped or even video recorded and are being transcribed to help preserve their stories for generations to come. Many of the participants have provided photographs, countless other documents and personal mementos for use in this project and for use at the Iowa CCC Museum located at Backbone State Park near Strawberry Point. A short video has been produced about the project. Ultimately, the information will be compiled into a book and companion CD that will be available for distribution to schools and other interested parties.

Free Camping Weekend and Explore Iowa Parks

In 2002, Iowa families were invited to camp free at 53 state park campgrounds May 10-12. The State wanted to create an opportunity for Iowa families to get back to nature right here in Iowa. It was hoped a free state park camping weekend would entice more Iowans to camp on a regular basis. Those who participate in outdoor recreation, whether camping, hiking or fishing, are better stewards of our natural resources. Along with free camping, the DNR hosted a major volunteer effort that same weekend. All state parks had some type of volunteer project where campers could lend a hand. Improvement projects included cleaning up beaches, picking up litter on trails, painting picnic tables and grills, removing invasive plants, installing retaining walls, etc. In follow-up to the free camping weekend, a camping promotion program was launched. The program was aimed at getting more people to camp at our smaller, less-used parks. Participation was easy and campers earned prizes depending on how many participating parks they camped in. The grand prize level included a drawing for a fold-down camper, a two-person kayak and 7 nights of free camping in Iowa State Parks.

State Preserves

In 2001, an updated and improved preserves guide, *The Guide to Iowa's State Preserves*, written by Ruth Herzberg and John Pearson, was published as a cooperative effort of the State Preserves Board, DNR and the University of Iowa Press. The new guide incorporated research and survey information gathered for various preserves since the last

guide and included improved directions to and maps of the preserves.

Also in 2001, the State Preserves Advisory Board hosted a weeklong field school at Fort Atkinson and nearby sites in Winneshiek County. The field school provided training in archaeological and historical research methods.

This field school was the first of a multi-year field school program focusing on two state preserves and related sites in an area of the state with a wealth of historical documentation, and rich and diverse archaeology.

FISH

In 2002 the Iowa DNR issued 351,756 fishing licenses as compared to 402,835 licenses in 1992. In 2001 Iowa anglers spent 7.48 million days fishing and contributed \$363 million in the purchase of fishing retail sales. Iowa anglers prefer to fish for catfish and largemouth bass where as bluegill, crappie and largemouth bass are the most frequently caught fish.

Fish Habitat Improvement

Twenty-two lakes received aquatic habitat improvements during FY 2002. Projects included vegetation control, shoreline riprap, placement of stake beds, pallet structure, broken concrete and brush piles. Improvements occurred at Lake MacBride, Lake Delhi, Casey Lake, Koutny Pond, Browns Lake, Middle Sabula Lake, Harpers Slough, Avenue of the Saints Pit, Center Lake, Meadow Lake, George Wyth Lake, Central Park Lake, Meyers Lake, Red Haw Lake, Lacey-Keosauqua Lake, Coralville Reservoir, Kent Lake, Lake of the Hills, Railroad Lake, Hickory Grove, Blue Heron Lake, Lake Darling,

Habitat improvement (bank stabilization and bank hides) occurred in 18 trout streams. Improvement projects were conducted on Bigalk Creek, Brownfield Creek, Ensign Creek, French Creek, Grannis Creek, Hewitt Creek, Little Turkey River, North Bear Creek, Maquoketa River, Spring Branch Creek, Swiss Valley Creek, Turtle Creek, Bankston Creek, Coon Creek, Grannis Creek, Little Mill Creek, Trout River and Coldwater Creek.

In 2002 fisheries staff continued lake restorations efforts at Storm Lake, Crystal Lake, Lake of Three Fires, Prairie Rose, Lake Ahquabi and Nine Eagles Lake. Staff was also involved in watershed management activities of 14 streams and at the Lost Grove Lake site.

Stocking

In 2002, fish culture facilities reared and stocked more than 127 million fish in Iowa's public waters. This total includes 589,000 trout, 122 million walleye, 1.2 million northern pike, 2.4 million hybrid striped bass and 350,000 catfish. An additional 980,000 fish were stocked into farm ponds.

Public Outreach

One hundred and sixteen fishing clinics/outdoor classroom were sponsored or cosponsored by fisheries management personnel. Oral presentations were given at 66 meetings of organized groups. The Bureau provided information for 199 newspaper articles and 42 magazine feature stories. A total of 217 radio programs and 43 television interviews were conducted. Fishing forecasts were provided to a minimum of 352 newspapers. Trout program staff completed 428 telephone interviews with randomly selected trout anglers as the basis of the 2001 trout angler survey. Numerous outreach activities occurred at the State Fair, sport shows, conservation organizations, National Fishing Week, high school job shadowing and watercraft inspection for detecting aquatic nuisance species.

Fish Mortality

Seventy-four fish kills were investigated during 2002. Forty-eight were on public waters. Twelve of the 48 were due to natural causes and nine were due to manure-related causes. The cause of fish mortality could not be determined in 16 of the 48 cases.

Resources Monitoring

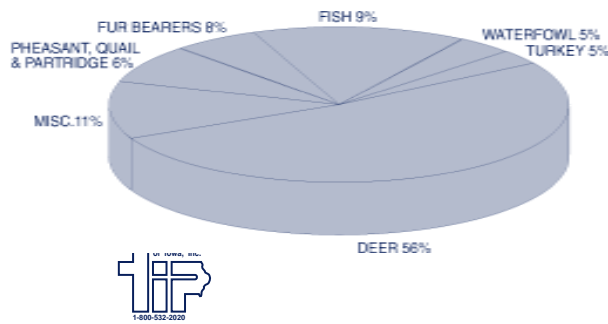
The Long Term Resource Monitoring Program continued to monitor water quality,

fisheries populations, aquatic vegetation and macro-invertebrates in Pool 13 of the Upper Mississippi River. The Aquatic Nuisance Species Program (ANS) is responsible for detecting, controlling and preventing the introduction and spread of aquatic nuisance species. Fifty-four lakes were surveyed for ANS.

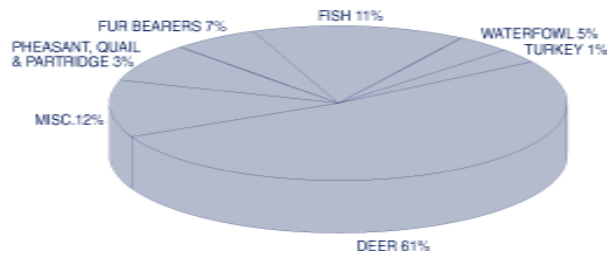
Fisheries Research

In 2002 research staff continue walleye, sauger, bluegill, crappie, channel catfish, muskellunge, fish culture and watershed/lake investigations to improve Iowa's fishery resources.

LAW ENFORCEMENT



Through Iowa's Turn-In-Poachers (TIP) program, a total of 294 TIP calls were processed in 2001 and 272 during 2002. These calls, from private citizens, resulted in 27 cases in 2001 with 60 citations issued, and 19 cases in 2002 and 47 citations issued. A total of \$10,900 was approved for reward payment in 2001 by the private group, TIP of Iowa, Inc. Reward payments totaling \$8,022 were approved in 2002.



EDUCATIONAL AND RECREATIONAL CLASSES FY2001						
	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester	ATV	Bow
Classes Conducted	499	49	13	2	17	14
Students Trained	12,368	1,011*	349*	14*	62	217

*Includes some home-study courses

EDUCATIONAL AND RECREATIONAL CLASSES FY2002						
	Hunter Education	Snowmobile Safety	Boating Safety	Fur Harvester	ATV	Bow
Classes Conducted	398	41	15	3	15	15
Students Trained	13,167	680*	462*	5*	38	169

*Includes some home-study courses

Land acquisition and the development of public wildlife areas continue to be Wildlife Bureau priorities. More than \$2 million of federal funding has been used to acquire wetland habitats and adjacent uplands. The Wildlife Bureau works to establish native grasses on upland habitats and restore wetlands on private lands. Pheasants Forever, Ducks Unlimited, Iowa Natural Heritage Foundation and others continue to provide additional funding to help the Bureau achieve its habitat development goals.

Seed Harvest Program

A diversity of prairie seed was harvested in FY 2001 by the Native Seed Harvest Program. More than 35,000 pounds of pure live seed was harvested from state wildlife areas with a value more than \$700,000. Through a partnership with the U.S. Fish and Wildlife Service (USFWS) and Pheasants Forever, more than 14,000 pounds affecting more than 1,800 acres were seeded to a diverse native mixture of prairie. Also, more than 21,000 pounds of native seed was used on state wildlife areas affecting 2,600 public land acres. The total of 35,000 pounds of seed has a value of more than \$750,000 and has allowed the Iowa DNR to plant diverse mixtures of native seed on public land that had been too expensive in the past.

A diversity of prairie seed was harvested in FY 2002 by the Native Seed Harvest Program. Thirty species of prairie wildflowers totaling more than 50 pounds were harvested from seed production plots and state preserves that had a value of more than \$10,000. Wildflower seed production is just emerging as the perennial plants in seed harvest plots associated with Department of Corrections facilities are becoming established. They bring a diversity in plant species (45) the DNR has never been able to afford in the past. The DNR partnership entered its final year with Pheasants Forever and the USFWS in which more than 32,000 pounds of harvested seed planted 1,800 acres of private land and 2,000 acres of public land to diverse native grass and forb mixtures. Iowa origin seed included more than 10,000 pounds, about 1/3, of native grass harvested. A \$50,000 North American Wetlands Conservation Act (NAWCA) grant has enabled more than 400

acres of diverse prairie habitat to be planted on state-managed land with the aid of private contractors.

Iowa Private Lands Program

The Wildlife Bureau's Private Lands Program was created in 2000. This program is a partnership between Iowa DNR, the Natural Resources Conservation Service and Iowa's private landowners designed to increase and enhance wildlife habitat on private lands in Iowa. Through 2001 and 2002 the program has assisted 7,813 landowners with habitat improvements on 140,224 acres of private lands. Of these acres affected, 6,704 acres were buffers established along Iowa's rivers and streams and 42,631 acres were wetlands restored in the form of CRP and WRP. More than 60,000 landowners, resource professionals, and conservation partners have been helped through various types of educational programs and informational materials on habitat issues.

Prairie Pothole Joint Venture

Activities within the 35-county Prairie Pothole Joint Venture area continue to be the most successful partnering effort for restoring wetlands and upland habitat in north-central Iowa. The USFWS, DNR and many county conservation boards have been able to acquire and develop 2,596 acres of wetlands and associated uplands in the past year. Since 1987, more than 57,000 acres have been placed in public ownership and restored to provide optimum wildlife habitat.

This year the DNR also received a \$700,000 grant from the Fish and Wildlife Service through the NAWCA to acquire and restore wetlands and associated uplands in northwest Iowa. When coupled with nearly \$2.1 million in partner funds, this project will provide significant additional wildlife habitat and public hunting lands in Dickinson, Emmet, Clay and Palo Alto counties.

Abundant Wildlife Populations in Iowa

Iowa's productive lands continue to provide excellent wildlife populations,

attracting resident and nonresident hunters. Approximately 408,000 residents and 47,000 nonresident hunting licenses were purchased to pursue deer, wild turkey, pheasants and other game birds and animals. The pheasant harvest was lower than usual and totaled about 730,000 birds. Iowa continues to rank as one of the top three pheasant-harvest states in the nation. Deer and turkey are two of the most sought-after game species in the state. Hunters took 140,000 deer during the fall season and more than 25,000 turkeys during the spring and fall seasons. Hunter success rates for these two species remain among the highest in the nation.

Wildlife Diversity Programs

The wildlife diversity program continued its activities in nongame wildlife surveys, restoration work and public information. Some

of the continuing surveys include wintering eagle and eagle nest surveys, sandhill crane surveys, colonial waterbird nesting surveys, frog and toad surveys and others. Diversity staff has been involved with trumpeter swan restoration work, peregrine falcon and osprey releases and monitoring, and river otter work. A 240-acre addition to the Kellerton Bird Conservation Area was acquired using federal wildlife conservation and restoration program funding, bringing this area to 1,080 acres in size.

Wildlife Management

Wildlife Bureau field personnel manage 456 public wildlife areas totaling 320,000 acres. Private land habitat accomplishments included the restoration of 38 wetlands totaling 184 acres, and the preparation of 280 wildlife farm plans affecting 7,500 acres. DNR cost-sharing was used to establish 50 shelterbelts on private land.



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