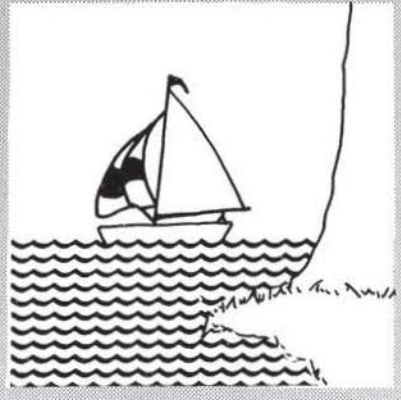
MPCA

MINNESOTA POLLUTION CONTROL AGENCY

1967 — 1987

TWENTY YEARS ECTING THE ENVIRONMENT



INTRODUCTION

"To meet the variety and complexity of problems relating to water, air and land pollution in the areas of the state affected thereby, and to achieve a reasonable degree of purity of water, air and land resources of the state consistent with the maximum enjoyment and use thereof in the furtherance of the welfare of the people of the state, it is in the public interest that there be established a pollution control agency."

Minnesota Statutes, Chapter 116

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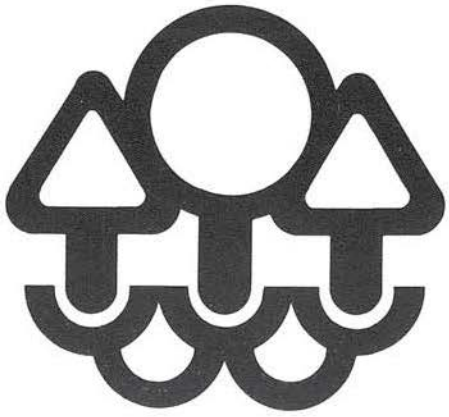


Twenty years have passed since public concerns over the declining quality of Minnesota's environment led the Legislature to create the Minnesota Pollution Control Agency (MPCA). It was 1967 — three years before a federal counterpart known as the U.S. Environmental Protection Agency (EPA) would be established and three years before environmentalists would observe the first annual Earth Day.

Rising from the former Water Pollution Control Commission and retaining all of its duties and authorities, the MPCA immediately received additional powers to deal with the emerging problems of air pollution and solid waste disposal. Other legislation followed rapidly in succeeding years, providing the MPCA with supplemental authorities and programs in order to respond to new demands for action.

Undoubtedly the state's most visible regulatory agency, the MPCA has often found itself embroiled in controversy as it considered its decisions. Environmentalists have cried out for more and increasingly restrictive environmental protections as those targeted by regulations have declared their opposing needs for less stringent standards. Over the years, the Agency's policy has been to attempt to work out the differences to satisfy all parties; when that has not been possible, however, the MPCA has not avoided confrontation in the interests of protecting the environment.

The results are obvious: the air and water are cleaner now than they were 20 years ago, in spite of a growing population and rising industrialization. As new issues have come to the fore, the Agency has tackled the problems and found solutions.

This booklet reviews the 20 years of MPCA history, relating the stories of hurdles surmounted and progress achieved. It also looks at directions for the future and some ways that you, the citizen, can help it in the pursuit of a cleaner, healthier environment.

The MPCA carries out the Legislature's mandate

Environmental protection begins and ends with monitoring. To determine what kind of pollution control is necessary and how effective it is, the MPCA regularly monitors the status of the environment, sampling air and water quality and collecting information on disposal of solid and hazardous wastes.

Lakes, rivers, fish tissue and the water underground are routinely analyzed at hundreds of sites to indicate safe uses for the water and to indicate trends and chronic pollution problems. The MPCA monitors air

quality for major pollutants at 50 sites throughout the state, and the program to detect the effect of acid rain includes data from rain and snowmelt acid-monitoring devices in ten locations and on several thousand lakes. Landfills are monitored regularly by means of water and soil tests.

With this information in hand, the MPCA has been able to set standards to protect the environment and to establish Agency rules. When monitoring indicates current rules do not effectively eliminate stubborn pollution problems or when problems are newly discovered, MPCA rules are altered in response to the information. In addition, the Agency reviews plans for major development projects with possible environmental effects, in order to foresee and prevent environmental damage by incorporating pollution control measures at the outset.

The primary tool in controlling pollution is the environmental permit. Facilities that might discharge pollutants into the air or water, or those which generate, treat or store hazardous wastes, or are disposal sites for solid wastes are required to have MPCA permits for their activities. Unlike other permits and licenses, these are expressly written for the individual activity being permitted. The permits contain details of specific enforceable conditions under which the facilities may operate, and include monitoring and reporting requirements. They often compel remedies for pre-existing pollution problems.

Some pollution emergencies require immediate action. MPCA staff is on-call 24 hours a day to respond to oil leaks, chemical spills or serious air pollution emergencies to be sure that adequate cleanup or containment measures begin without delay.

Checking for pollution problems throughout the state is a big job. Fortunately, the MPCA is not alone in caring for the environment. Concerned citizens frequently provide valuable assistance, bringing suspected violations to the Agency's attention. The MPCA also cooperates with other Minnesota departments and agencies, and works with the U.S. EPA in carrying out its environmental programs.

"The MPCA was a dream of the scientific fraternity of the area. I was one of four city engineers who served on the committee that came up with the idea of a single agency dealing with the three areas of pollution: water, air and solid waste. We came up with the idea and gave it to Governor Levander, and he and Senator Rosenmeier and Representative Frenzel carried the ball. At the time, we were one of only one or two agencies in the country of this type, so we established a pattern for other states to follow."

John Badalich
Executive Director 1967-1971

Minnesota's famous quality of life is largely due to abundant and unblemished natural resources. The MPCA and the people of Minnesota are proud of the results of 20 years of environmental leadership which have made our state a great place to live, work and enjoy the outdoors.

THE MPCA CITIZENS BOARD

"A pollution control agency, designated as the Minnesota pollution control agency, is hereby created. The agency shall consist of nine members appointed by the governor, by and with the advice and consent of the senate. One of such members shall be a person knowledgeable in the field of agriculture."

Minnesota Statutes 116.02

"The sensitivity or awareness of Minnesotans to the environment increased rapidly in the first years of the Agency's existence. When I was on the Water Pollution Control Commission, for example, we had an application from Reserve Mining to increase the deposition of tailings into Lake Superior by a considerable amount. No one seemed to be interested in it. At the same time, we had an application from Northern States Power for a nuclear energy plant, and no one showed up. Then, when the MPCA had hearings on those issues, hundreds of people attended. Feelings ran high. During the first few years, we lived in a goldfish bowl because of all the interest in what we were doing."

Bob Tuveson
Member, MPCA Board 1967-1971

In establishing the MPCA, the Legislature empowered a body of selected citizens to make the difficult policy decisions in a public forum. The MPCA is the Citizens Board, supported by Agency staff. Originally seven members, the Board was increased in the MPCA's early years to nine members, and a later requirement added that one member should represent agriculture.

Board members serve four-year, staggered terms. They come from all parts of the state, with diverse backgrounds. The Board meets regularly each fourth Tuesday of the month at MPCA headquarters in St. Paul, and in special meetings as necessary. In these meetings, affected citizens, environmentalists, industry spokespersons and representatives from local governments are heard and their concerns considered as decisions are made.

Over the years, the Board has made countless decisions. For many, public attention has been moderate, as the Agency has gone about its business protecting the environment. At times, however, the MPCA board room has filled to overflowing with various factions and interests trying to persuade the Board to decide in their favor on some issue. Sometimes the 9:00 a.m. meeting continues well into the evening hours, as the Board ensures that it has heard all the arguments on each side of the topic.

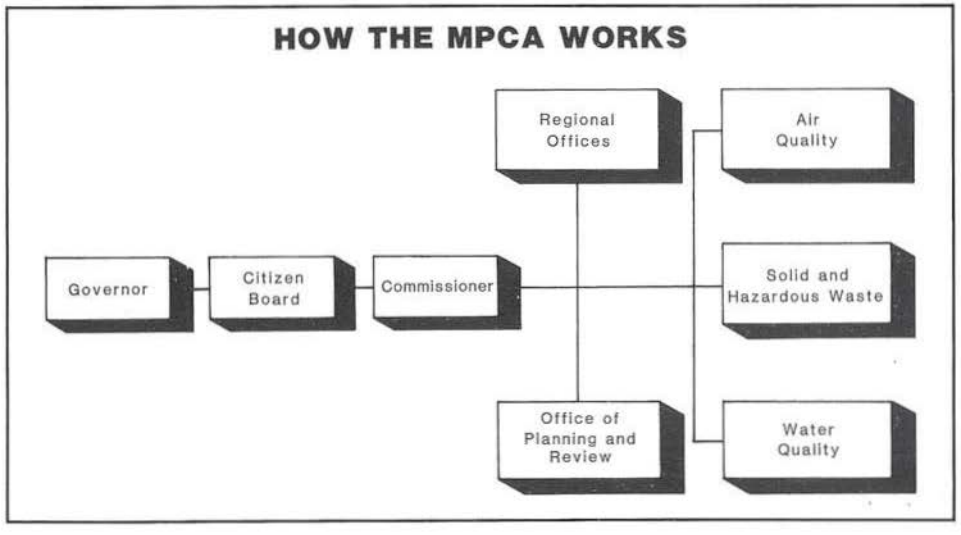
The MPCA Citizens Board sets major environmental policy for Minnesota. Any citizen may testify at board meetings, held the 4th Tuesday of each month at MPCA headquarters in St. Paul.

Board members

Howard Anderson	1967-1982
Carol Baudler	1985-1986
John Borchert	1967-1970
Carol Buckmann	1975-1979
Duane Dahlberg	1982-
Russell Domino	1982-
Art Englebrecht	1973-1981
Ruth Ericson	1986-
Edward Fairbanks	1983-1987
Jim Fellows	1969-1972
Hal Field	1971-1979
Dan Foley	1985-
Steve Gadler	1967-1981, 1983-1985
Marcia Gelpe	1984-
Burt Genis	1973-1981
Janet Green	1983-
Joe Grinnell	1973-1980
Mace Harris	1967-1973
Virgil Herrick	1979-1983
Cynthia Jepsen	1981-1985
Curtis Johnson	1982-1983
Keith Langmo	1982-
Homer Luick	1967-1972
Dorothy Nelson	1969-1970
Wally Nelson	1980-1982
Dale Olson	1971-1974
Arnold Onstad	1986-
Wayne Packard	1967-1971
Duane Rappana	1979-1983
Bob Tucker	1972
Bob Tuveson	1967-1971
Marion Watson	1972-1981
Bill Walker	1985
Lois West	1981-1985
David Zentner	1974-1978

Progress

The next 15 pages summarize progress achieved in the Agency's 20 years of effort. By necessity, the summaries are short. Much remains to be accomplished, and the Agency cannot relax its vigilance. However, even the casual reader will note that the progress is real and quantifiable, in air quality, in water quality, and in dealing with the disposal of solid and hazardous wastes.



"The two outstanding presentations I recall were not by eloquent lawyers or other professionals. One was by a Finnish fisherman on Lake Superior, who knew what the situation had been before Reserve Mining discharged tailings and what it was at that time. The other was a trash hauler. He knew his business inside and out, and he talked very simply and very, very well. If a person knows his stuff and is sincere, it doesn't matter. He doesn't have to hire a lawyer to represent him. I think those presentations by people who were not professionals were much more impressive than from some professionals."

Dr. Howard Anderson
Member, MPCA Board 1967-1982

"We were required to balance environmental issues versus economic issues, but the Agency always put protection of the environment first. Balancing those sometimes got to be a difficult thing. It's hard to quantify, but you know it is out there, and you're thinking about it, sure. On the other hand, I am not much of a proponent of the economists who try to solve environmental problems with cost-benefit ratios. The Agency has a basic responsibility to protect the environment."

David Zentner
Member, MPCA Board 1974-1979

"I think we always felt a sense of mission, and it seemed at times that we were protecting people against themselves. We had to go out and sell — convince municipalities and industries that there was a problem that had to be corrected. We were competing at the time. Municipalities would rather have had paved streets, or better sidewalks, or new city halls. But it was satisfying."

Lyle Smith
Acting Executive Director 1967

Trends in the quality of water in Minnesota's lakes and rivers reflect the MPCA's efforts to combat water pollution, building on the work begun by the Water Pollution Control Commission. The national effort accelerated with the passage of the federal Clean Water Act in 1972. The goal of the act was to "restore and maintain the chemical, physical, and biological integrity of the nation's waters," and it created a variety of programs to study and regulate sources of water pollution, with most of the responsibility for carrying out the programs delegated to the states, under EPA supervision.

Considerable effort has been focused on so-called "point sources" of pollution: discharges of wastewater from municipal sewage treatment systems and industrial or commercial operations. At the heart of these efforts has been a program to require MPCA permits for such sources and a grant program to cover much of the cost of upgrading or building new municipal sewage treatment plants.

The last 20 years have seen continuous growth in construction of new wastewater treatment plants and MPCA training and certification of their operators to ensure the plants are properly maintained and operated. A dramatic increase in federal funding began with the passage of the 1972 Clean Water Act. Since 1967, more than $1 billion in state and federal funds has been granted to municipalities by the MPCA for wastewater treatment construction.

"Point-source" discharges are no longer the main threat to our waters. Polluted runoff from city streets, farm fields and other nonpoint sources is now the leading contributor to violations of water-quality standards.

Figure 1

In 1971 the Minnesota Legislature authorized a mandatory certification program for treatment plant operators (certification previously had been optional), and the program began the following year. Figure 1 shows the increase in certified treatment plant operators, and in the number of operators receiving MPCA training.

Figure 2 demonstrates the result of these increases. Just a few small municipalities remain that do not now have at least secondary wastewater treatment, although several hundred need to upgrade these systems.

Government, citizens and industry have worked together to achieve significant progress in eliminating pollution from point sources. Analysis of trends in stream water quality in Minnesota from 1973 to 1985 indicates that improved wastewater treatment has reversed the adverse effects of municipal and industrial discharges. Currently, about 95 percent of industrial dischargers and 75 percent of municipal dischargers are in compliance with their permit limits.

The effects from nonpoint sources, however, are increasing in some parts of the state. These sources are the land-management or land-use practices which allow polluted water to run off the surface of the ground, percolate into ground water or seep from underground into surface water.

To help define trends in stream water quality in Minnesota, the state has been divided into seven aquatic ecoregions, based on land use, soils, land surface forms and potential natural vegetation, as shown in Figure 3.

"Minnesota is a national leader in the operator training program, so it has been used as a model for other states. We've developed a lot of top-notch operating personnel, and many of the staff within our unit have moved on to bigger and better positions in the country. It's been rewarding to see the growth."

Bill Sexauer
Water Quality Division 1967-

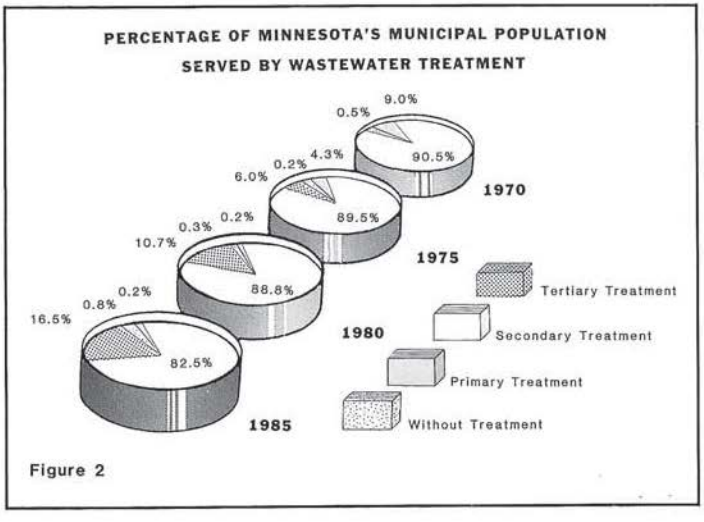


Figure 2

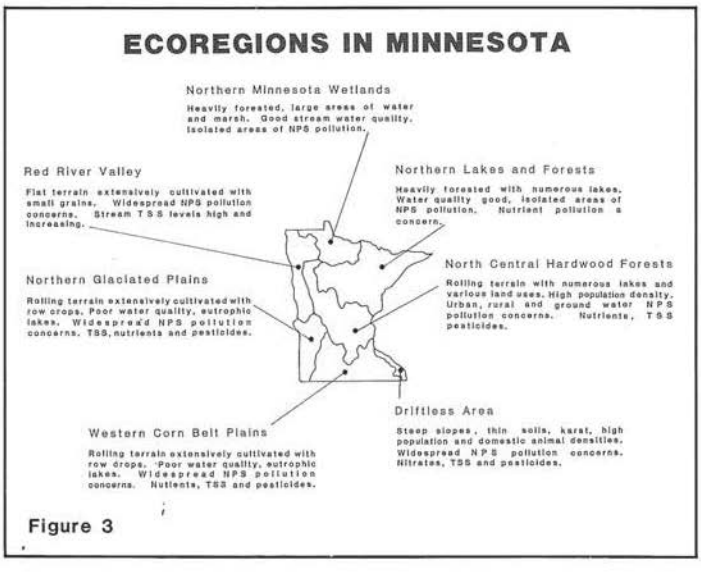


Figure 3

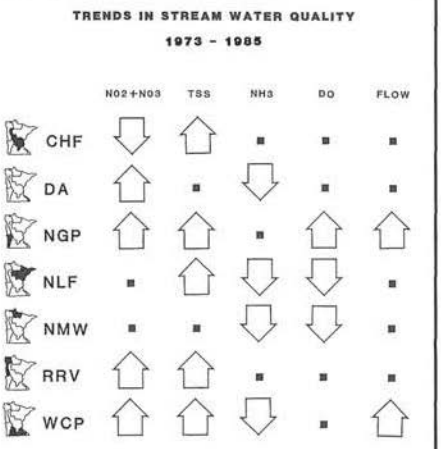


Figure 4

The elements included in the trend analysis include nitrate-nitrite concentrations (NO2 + NO3), total suspended solids (TSS), ammonia (NH3), dissolved oxygen (DO), and flow, factors that affect how well the water can support fish or encourage the growth of algae. Many regions experienced decreases in the ammonia concentrations and all regions except the Northern Lakes and Forests showed small changes in dissolved oxygen values, a direct result of improved control of point sources of pollution. Measurements most affected by nonpoint-source pollution (nitrite-nitrate concentration and total suspended solids) were more likely to indicate degraded water quality. The 1987 Legislature created the Clean Water Partnership Program to provide interested local units of government with resources with resources to establish water-quality projects which will protect and improve lakes, streams and aquifers degraded by nonpoint sources of pollution.

Water quality improvements by Minnesota's major wastewater dischargers

St. Louis Bay in Duluth

A major step was taken in improving the quality of water in the St. Louis River and Lake Superior when a new regional wastewater treatment facility called the Western Lake Superior Sanitary District began operating in November 1978. The district brought together seven cities and 10 townships, serving a population of approximately 135,000 and four major industries, to provide improved wastewater treatment, with the help of $96 million in EPA and MPCA grants.

The treatment plant discharges to St. Louis Bay, and monitoring and compliance reports show the treatment to be excellent. Both the St. Louis River and the Bay have responded with dramatic improvements in several pollution indicators. Figure 5 depicts the progress in reducing pollution in the St. Louis Bay. The residents have detected the change as well, and, perceiving the improved quality, have returned to fishing the area. The fish had been plagued with a tainted taste, but are now considerably better in flavor, and the long-term outlook is one of optimism for continued improvement.

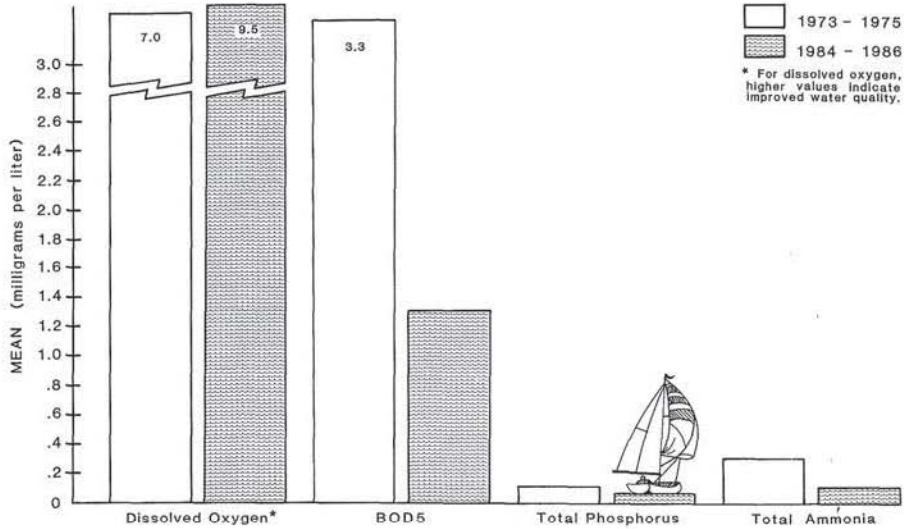


Figure 5

Mississippi River in the Twin Cities metropolitan area

The Mississippi River plays a crucial role in the vitality of the Twin Cities of Minneapolis and St. Paul. It supplies drinking water to its citizens, cooling water for its utilities and industries, efficient transportation for barges hauling its grain, and recreation for its residents. It also provides a site for convenient sewage and waste disposal, and concern arises as to whether the river can satisfy all these uses.

The Metropolitan Wastewater Treatment Plant treats approximately 85 percent of the wastewater in the Twin Cities system. Located on the Mississippi River in St. Paul, the Metro Plant treats an average wastewater flow of 231 million gallons a day produced by industry and more than 1.5 million people in the Twin Cities and 60 adjoining municipalities. It treats wastewater from nearly half the people in the state who are served by sewers.

Constructed in 1937, the Metro Plant initially provided only primary treatment: removal of large solids and settleable organic matter. Much of the original facility is still in operation. By 1986 it had expanded, however, to provide secondary and advanced treatment, funded by $300 million in EPA and MPCA grants.

The result is a discharge that meets MPCA standards, and it is now possible to fish in the Mississippi River downstream from the plant. The following table compares water quality indicators in the Mississippi downstream of the Metro Plant for 1973-75 and 1984-86 summer months, when water-quality problems are most likely. Continued improvements are likely in the future, now that the expansion is complete.

The primary obstacle to achieving the Clean Water Act's goal of making it safe to swim in the river is the existence of sewers designed to carry both storm water and sanitary sewage. Due to the limited flow capacity of these old sewers, as many as 87 overflow points discharge untreated combined sewage when it rains. The main effect of the overflows is the probable discharge of disease-causing organisms, which can pose a health threat to any swimmers. The overflows account for 98 percent of the summer loading of fecal coliform bacteria to the river, an indication that untreated sewage is reaching the river.

"In the time that I have headed up the MPCA, the single thing that has impressed me the most is the zeal and dedication of Agency staff. These men and women come to the MPCA with a genuine concern for the environment, and they work long and hard hours, giving extra from their personal time and energy. They truly care about the important job they're doing."

Thomas Kalitowski
Commissioner

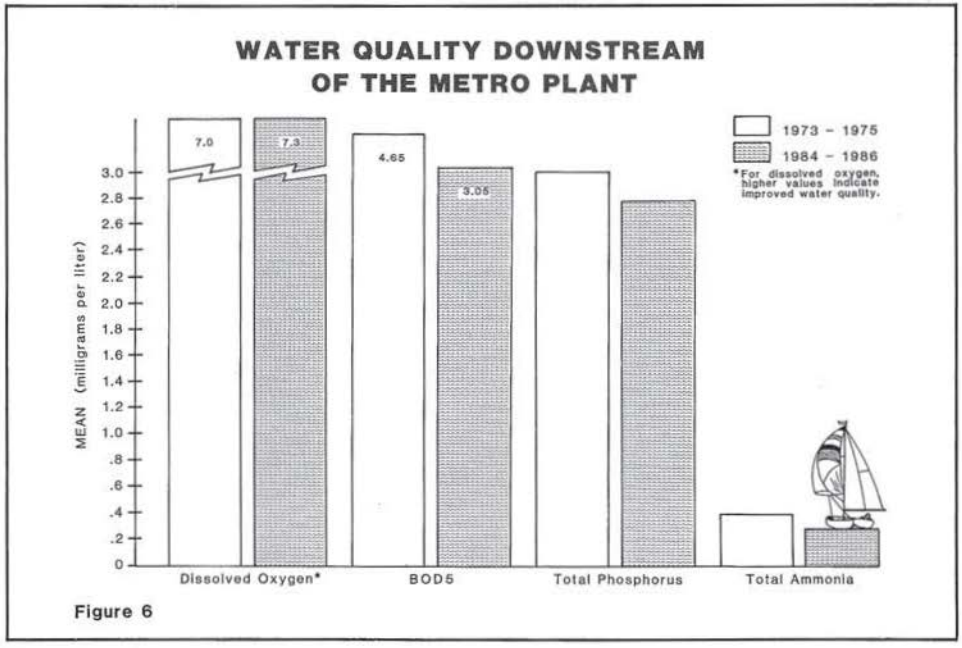
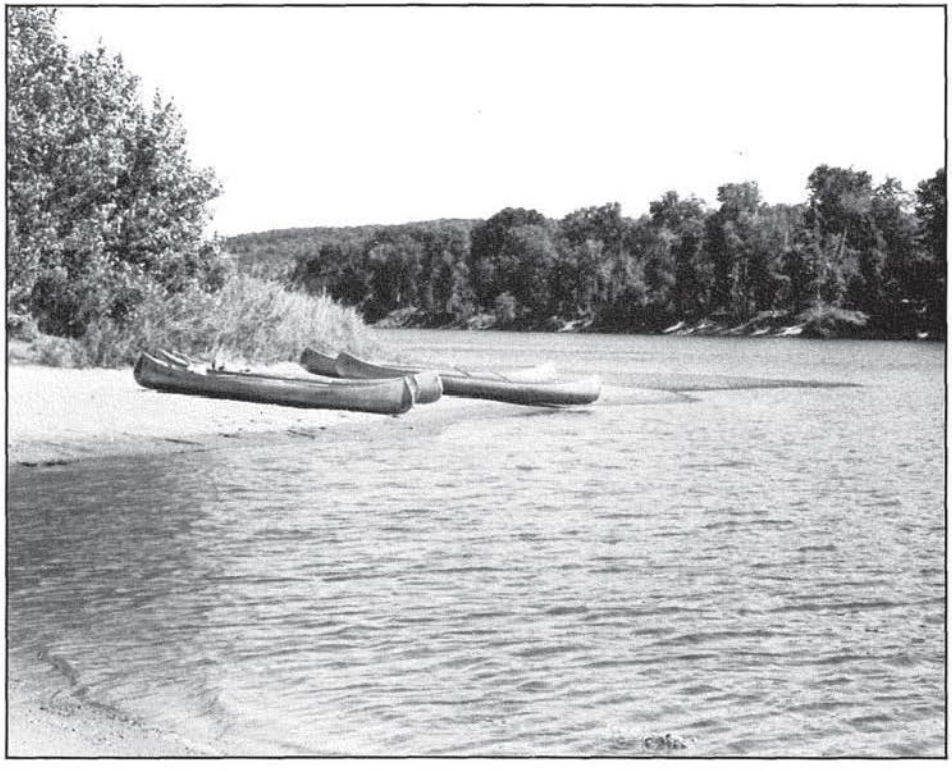


Figure 6

"I think of the Agency as a technical agency. It has to look at the issues that are out there and address the problems. Ultimately, the MPCA Board has to deal with policy. It has to determine the economic impact and balance that with the standards necessary to deal with the problem."

Lou Breimhurst
MPCA Staff 1975-1983
Director, Water Quality Division
Acting Director, Solid Waste Division
Deputy Executive Director
Executive Director 1981-1983

A study of the problem concluded that a sewer separation program at an estimated cost of $349 million would be the preferred solution. The Cities of St. Paul, Minneapolis and South St. Paul are now involved in an intensive ten-year project to separate the sewers and correct the problem, assisted by the MPCA's construction grants program.



Clean rivers are important for drinking water, commerce, wildlife and recreation.

Lake Superior near Reserve Mining Company

The Reserve Mining Company long operated a taconite processing plant in Silver Bay, Minnesota. At full production, the plant processed approximately 90,000 long tons a day into iron ore pellets and discharged some 67,000 tons of waste tailings into Lake Superior.

During the early 1970s, a controversy arose among Reserve, the State of Minnesota and the federal government regarding the disposal of these tailings. Litigation was initiated on the basis that Reserve's discharge violated state and federal law and the common law of nuisance. In addition, it was discovered that mineral fibers in Duluth's drinking-water supply originated from a unique geological deposit in one of Reserve's mines, and federal courts ruled that the fibers were indistinguishable from asbestos fibers known to be carcinogenic.

In April 1977, the controversy was resolved when the Minnesota Supreme Court ordered construction of an on-land disposal basin at a site referred to as Mile Post 7. The site included an approximately six-square-mile area about five miles northwest of the plant. Total cost to Reserve was estimated to be in excess of $370 million. In 1980, use of the on-land disposal site began, and the discharge into Lake Superior ceased.

In 1967, air pollution control in Minnesota was largely a function of local governments, some of which had received federal grants to begin their programs. The first federal Clean Air Act had been enacted in 1963, establishing air quality standards. The same year that the MPCA was created also saw the passage of a federal Air Quality Act requiring the states to set standards and plan control strategies to meet them.

As the MPCA's Air Quality Division developed, local programs were largely phased out, with many staff from local programs in the Twin Cities joining MPCA staff. During the last 20 years, substantial progress has been made in improving air quality at the same time as population and industrial growth have resulted in an ever-increasing need to control emission sources.

One of the more dramatic improvements in air quality during the 20-year period has been reduction of sulfur dioxide, a colorless gas which affects our respiratory tracts, vegetation and building materials. As shown in Figure 7, annual arithmetic means (the midpoints between highs and lows of sulfur dioxide each year) of sulfur dioxide in Minneapolis and St. Paul have declined to one-fourth

"We had one of the first metropolitan-area air monitoring systems with continuous analysis, with data being telemetered into our headquarters. When we had regional meetings with the EPA, often we would be the only state that would have all the data, out of the six states in the region. We did have one air quality alert, in 1972. We were able to stay on top of it because we were getting readouts every hour."

Ed Wiik
Director, Air Quality Division
1968-1980

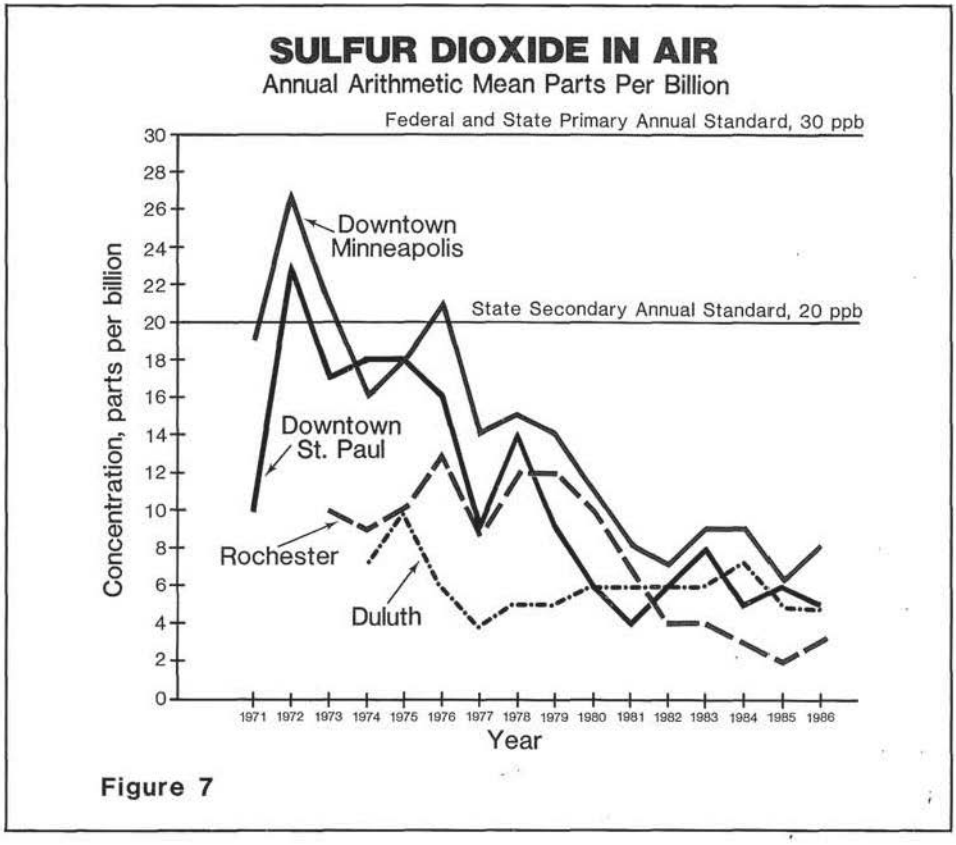
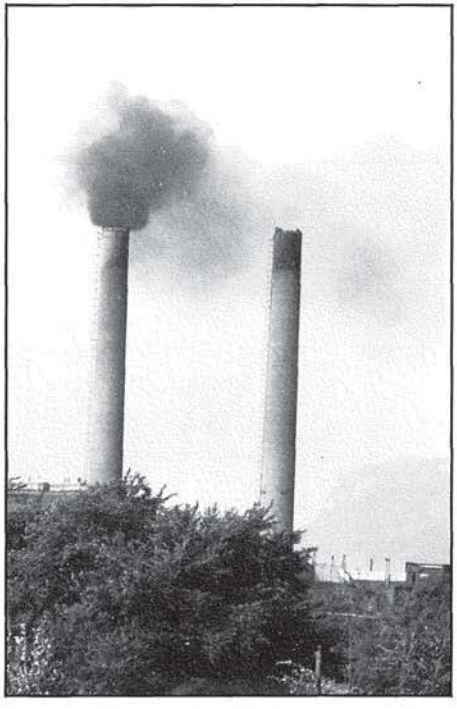


Figure 7



Industrial air pollution has decreased significantly in 20 years, making such scenes extremely rare. Other less visible air pollutants from vehicles and toxic pollutants from industrial processes will challenge the state as our population and economy expands.

the 1967 level. This is consistent with the reductions of sulfur dioxide emitted into the air during the same time, as shown in Figure 13 (page 14). Annual sulfur dioxide levels in Rochester and Duluth also declined during the period, although not nearly as dramatically. These levels are now in compliance with all state and federal standards. This can be attributed directly to the MPCA's emission standards used to regulate power plants, boilers, refiners, and other industries.

Similar improvement is seen in the lowering of the lead levels in the air. Figure 8 shows the decline of lead levels at several key monitoring locations. Airborne lead is significant because chronic exposures to lead can lead to anemia, weakness and brain damage. The I-35W and Nicollet Mall monitors measure the amount of lead in the air caused by vehicles. The Berry Street monitor is placed near a company handling lead materials. The reduced lead in air is due to several general control strategies. Traffic-generated airborne lead has been controlled largely by reducing lead additives in gasoline. The MPCA's tight emission standards have reduced the lead in air near manufacturing sources. While lead in air has been significantly reduced, the accumulation of lead in soil remains a concern owing to the many years that lead was added to gasoline and subsequently emitted into the environment, as well as the contribution of lead from lead-based paints.

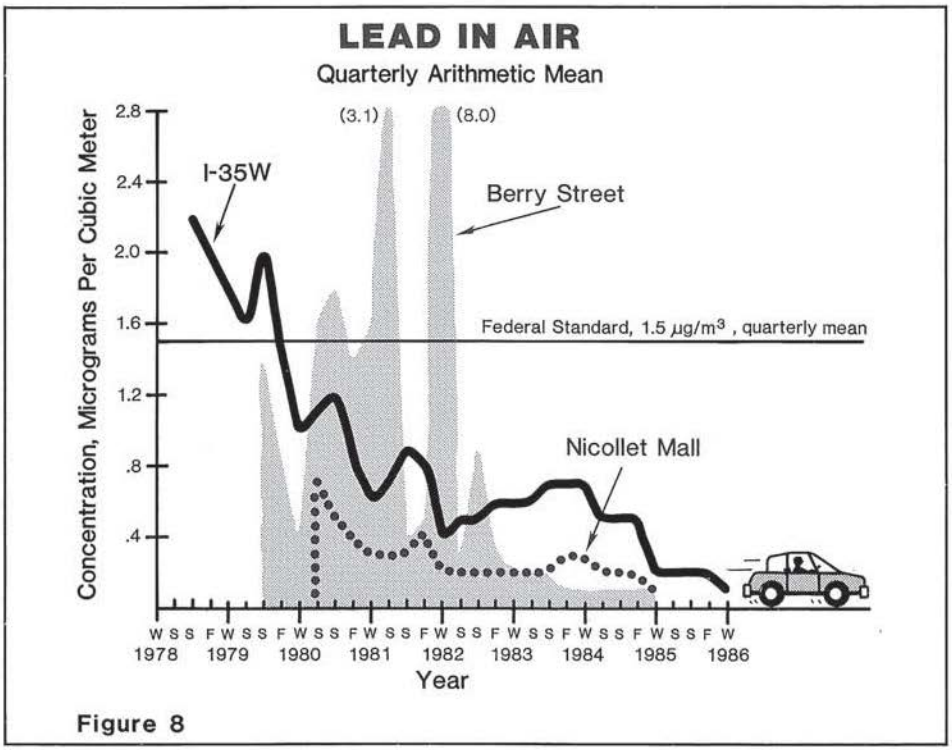


Figure 8

Another pollutant, carbon monoxide, is a highly toxic gas which in small amounts can impair alertness and cause fatigue and headaches. In larger amounts, of course, it can kill. Reducing carbon monoxide levels in the metropolitan areas has been difficult, as it is largely due to traffic congestion and appears to concentrate at busy intersections where traffic backs up.

The federal approach to reducing carbon monoxide levels has been requiring pollution-control devices on automobiles. This federal plan, along with state planning to promote better traffic flow, has accounted for some improvements. Although carbon monoxide varies from place to place, Figure 9 indicates some overall improvement in the Twin Cities metropolitan area.

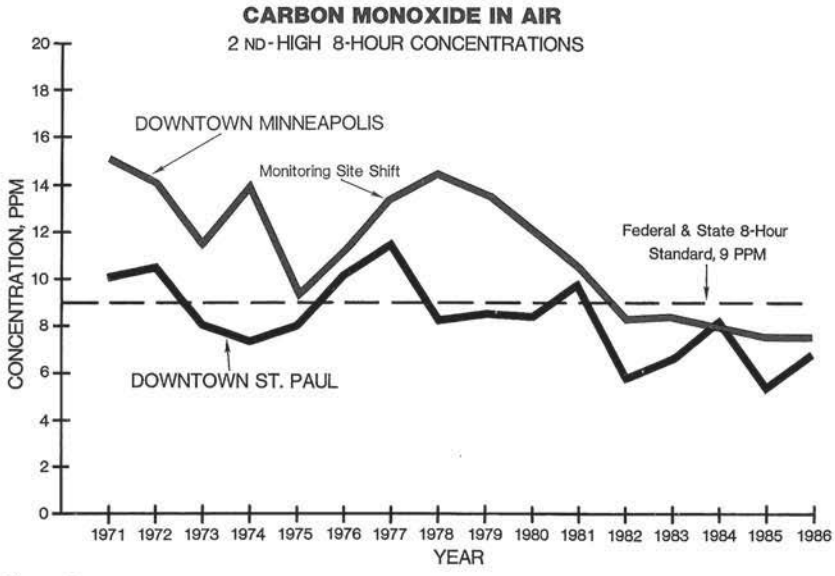


Figure 9

Elevated carbon monoxide levels also occur in smaller cities, as shown in Figure 10.

Currently only a few monitored locations do not meet standards, the most notable being the Snelling and University complex in St. Paul. However, recent and planned development projects in the downtown areas and suburbs, coupled with overall growth in the Twin Cities, will likely increase carbon monoxide levels in the future, requiring additional steps to protect public health.

Ozone, formed by the reactions of nitrogen oxides and hydrocarbons in sunlight, high humidity and high temperatures, is basically a summer pollutant which can cause eye, nose and throat irritation. Emissions resulting in ozone are

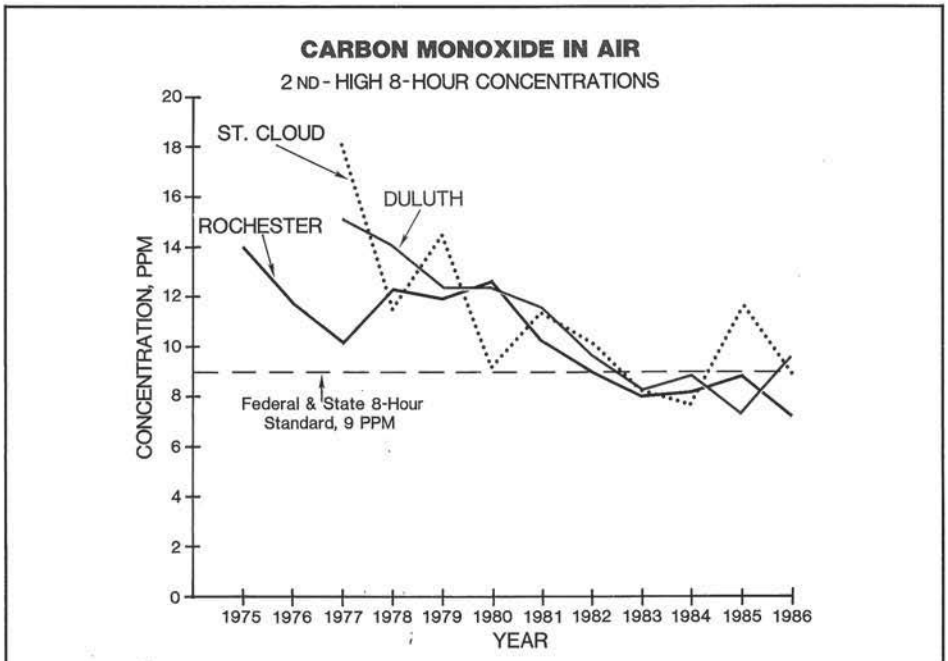


Figure 10

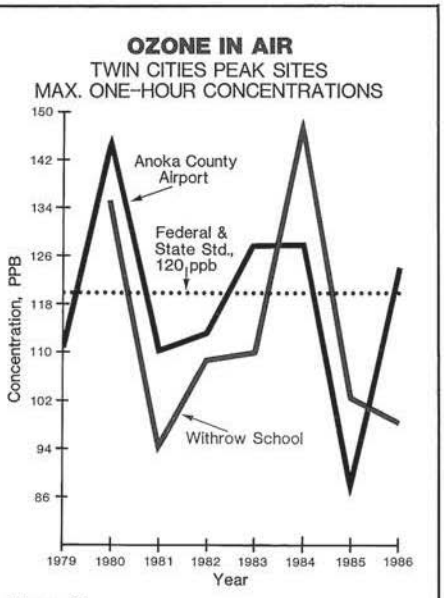
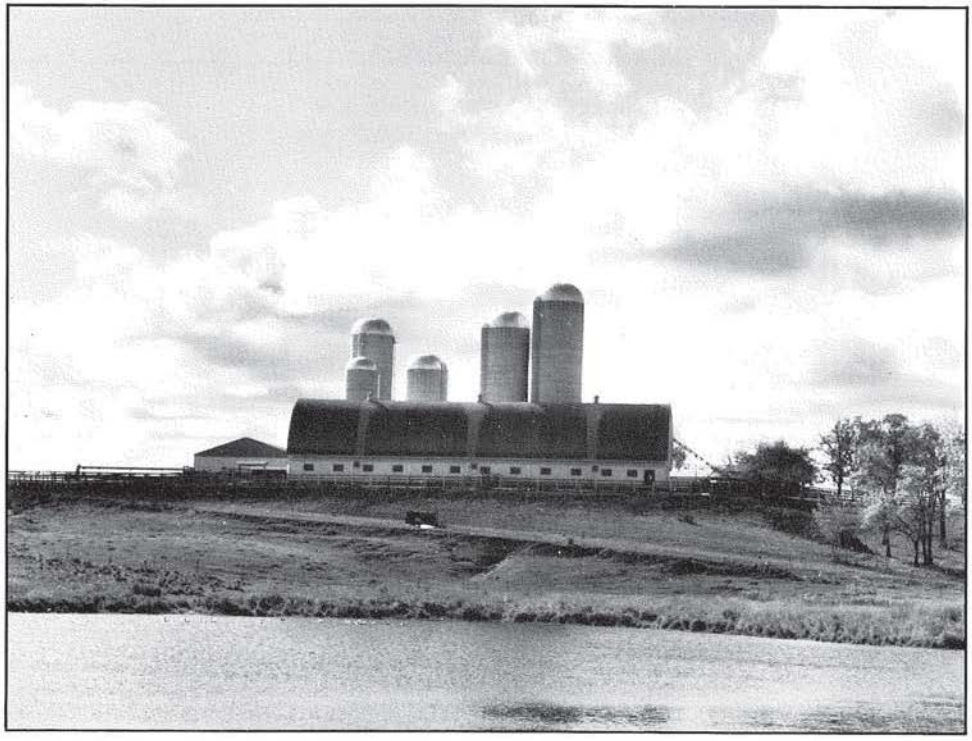


Figure 11

from traffic and industrial sources, and maximum concentrations in Minnesota are measured generally north of the Twin Cities metropolitan area under southerly wind conditions.

Figure 11 shows maximum one-hour concentrations at the two most significant monitoring sites over an eight-year period, demonstrating the cyclic nature of ozone generation. Minnesota is now one of only a few states in the country entirely in compliance with federal ozone standards. As with carbon monoxide, however, continued development and population growth may well dictate additional ozone control measures to prevent unhealthy concentrations.



Clean air is vital to our health and economy.

Airborne particles such as dust or soot are also regulated pollutants, as they can aggravate respiratory diseases, reduce sunlight and damage plants. Particulate matter can come from both natural and man-made sources. In general, particulates originating from stacks or chimneys have been well controlled, but wind-blown dust from sources such as roads and construction sites remain a problem in some areas. In dry conditions, natural sources of wind-blown dust such as open fields contribute significantly to airborne concentrations of particulates. As with carbon monoxide, particulate levels can depend upon local conditions, and it is very difficult to discern trends or to depict concentrations in an area-wide sense. A new fine-particulate standard recently promulgated by the EPA is aimed more at the man-made particulates that are likely to threaten human health.

Nitrogen dioxide is the only federal criteria pollutant for which compliance with ambient standards has always been achieved. Nitrogen dioxide comes from fossil fuel combustion in vehicle exhausts and industrial boilers, and it reacts with hydrocarbons to form ozone. The MPCA has two monitoring locations in the Twin Cities, and data from these monitors are used to help predict the role of Twin Cities-generated nitrogen dioxide in the formation of ozone downwind of the metropolitan area. Nitrogen dioxide levels have been consistently 50-60 percent below the annual arithmetic mean standard, a national standard which allows 40 parts per billion.

The 1982 Legislature passed the Minnesota Acid Deposition Control Act, the first act of its kind in the world, which directed the MPCA to develop a standard and control plan to protect sensitive Minnesota resources from the harmful effects of acid rain. After considerable study and debate, the MPCA adopted rules in 1986 which set the standard at 11 kilograms of wet sulfate deposited by rain or snow per hectare per year, or about 10 lbs. per acre. This standard is the amount of acid fallout that the most sensitive lakes can withstand before damage occurs.

The control plan which will help keep acid rain within this limit caps emissions from the two largest utilities in the state and limits emissions from large, coal-fired boilers. Although the MPCA is controlling the state's sulfur dioxide emissions through this control plan, other states and Canadian provinces contribute about 90 percent of the sulfate depositions in Minnesota (see Figure 12). Since the MPCA cannot regulate emissions in other states, the Agency supports the goal of a national program to reduce those emissions which contribute to acid rain.

Figure 13 shows the historical trend in Minnesota's sulfur dioxide emissions, along with the sulfate deposition measured at the Marcell Experimental Forest in north-central Minnesota. As emissions have declined, the sulfate deposition rate has evidenced a similar decrease. The acid deposition standard and control plan will help to keep these deposits at levels safe for Minnesota's lakes.

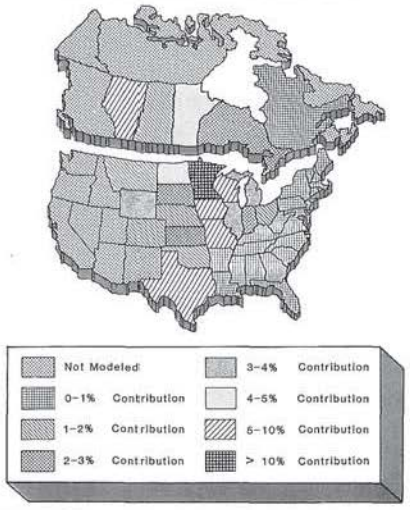


Figure 12

"I cannot say enough about MPCA staff. I think the people in Minnesota are very, very well served by their agency staffs, in general. But the PCA staff was bright, dedicated, hard working and honest. I took a lot of pride in their quality. I think in general, civil servants in Minnesota are vastly underrated."

Marion Watson
MPCA Board Member 1972-1981

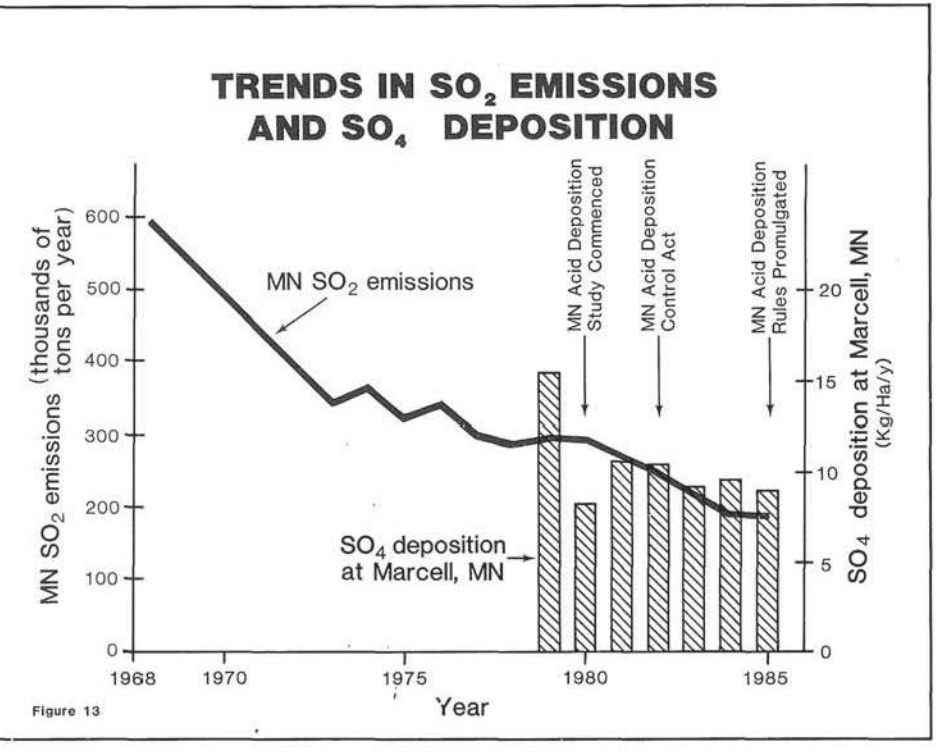


Figure 13

"Executive Director John Badalich approached me in 1968 to organize the solid waste division. Initially, I had two people, and our thrust was to develop land disposal regulations. They were adopted in January 1970. Minnesota was one of the first states to pursue this kind of regulation. A lot of other states later took our regulations as a basis for their own."

Floyd Forsberg
Director, Solid Waste Division
1968-1973

Minnesotans generate enough refuse each year to fill five lanes of garbage trucks stretching from the Iowa border to the Canadian border. In 1969 when the first solid waste rules became effective, Minnesota probably generated three and one-half lanes of waste which was disposed of in 1,500 open dumps and one landfill. That first landfill is now on the list of sites where hazardous wastes pose a threat to human health and the environment, the Superfund list.

During the early 1970s, emphasis of the Solid Waste Division's four staff members and a few student workers was to close open dumps and establish low-cost sanitary landfills as a replacement. The concept was to create earthen cells around the waste to keep out insects and rodents and prevent odors, blowing litter, water pollution and fires. Early solid waste rules also required each county to develop a disposal plan designating locations for all wastes generated in the county. Within a few years, MPCA staff had helped cities and counties to close the vast majority of open dumps and establish county or regional sanitary landfills, vastly enlarging the private solid waste industry serving the public.

Open dumps like this one have been closed around the state, but our own solid waste continues to plague us at a rate of more than four million tons per year, nearly one ton per person.

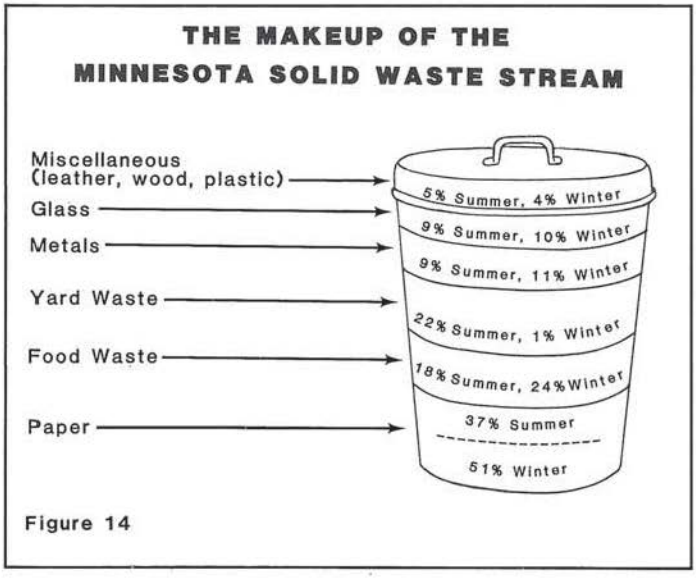


Figure 14

By 1975, 125 landfills with MPCA permits served more than 90 percent of the population. Landfill design standards, enforcement practices and staff expertise had become increasingly sophisticated to deal with the growing evidence of the environmental hazards caused by improper solid-waste disposal. During the mid-1970s, the movement to consider alternatives to disposal such as recycling and waste-to-energy incineration began, driven by energy costs, petroleum shortages and rising concern about ground-water contamination at landfills.

The Waste Management Act of 1980 and later amendments specifically required an equitable comparison of all alternatives to land disposal and a movement toward implementing those alternatives. MPCA review of existing solid-waste programs and issues encouraged counties to prepare action-oriented plans for solid-waste management, while at the same time Agency staff provided technical assistance to the counties and drafted more stringent requirements for solid-waste facilities.

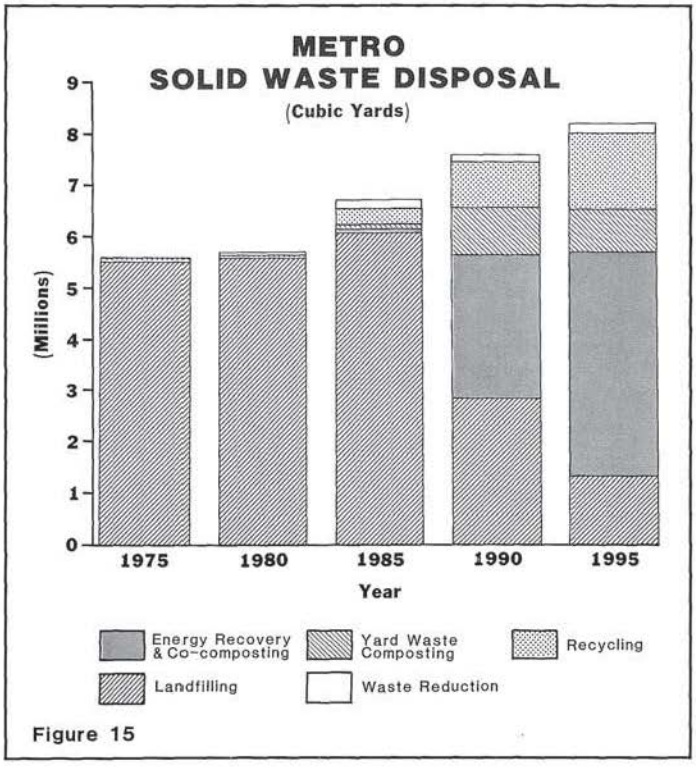


Figure 15

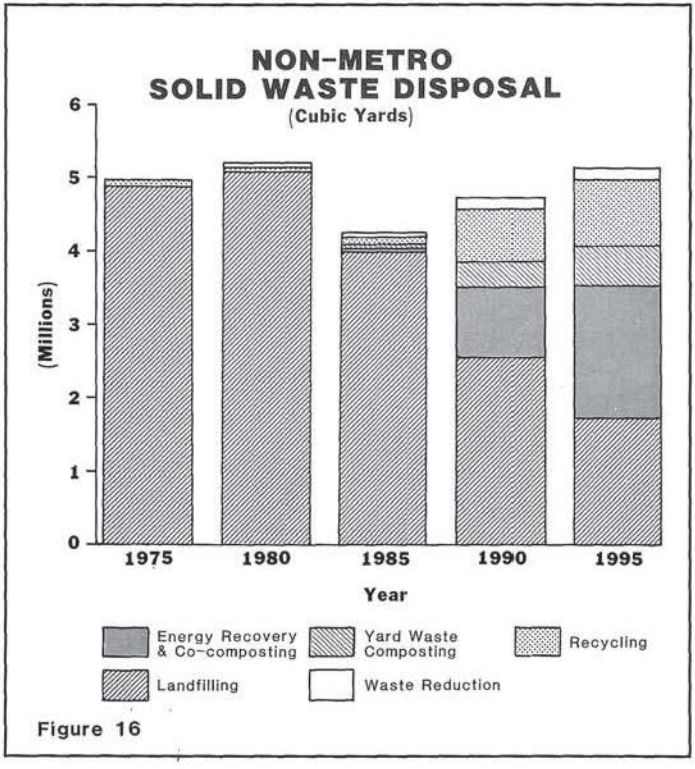


Figure 16

"Something that threaded its way through the Agency both times I served as executive director was the changing approach to the management of solid waste. Over a fairly short period of time, we moved from essentially nonregulated dumping to more regulated land disposal and then, finally, to an approach which emphasized alternatives to land disposal and recycling our materials or using the energy recovery approach."

Sandra Gardebring
Executive Director 1977-1979,
1983-1984

County planning at work

Officials in Olmsted County discovered in the early 1980s that their landfill was rapidly running out of room and could not be expanded. Because the geology in the area made it difficult to find a safe site for a new landfill, the county embarked on an ambitious schedule to implement alternatives.

Today the Olmsted County Landfill no longer accepts mixed-municipal waste and is in the process of being properly closed. The county has developed a multi-faceted waste management program. An incinerator burns much of the refuse from Olmsted County and neighboring Dodge County and a portion of Wabasha and Goodhue Counties. The incinerator represents one of the best technologies currently available and is well run and well managed.

A recycling center adjacent to the incinerator receives recyclable wastes, shredding newspaper and selling it for livestock bedding. Leaves and other yard waste are composted at three sites. Collection boxes for newspapers can be found in shopping centers and towns throughout Olmsted and Dodge Counties. Several special tire collection days have been held, and the county solid-waste advisory board is currently planning programs for household hazardous wastes and special wastes such as automobile batteries. Olmsted County continues to work on modifications and improvements for its solid-waste management system.

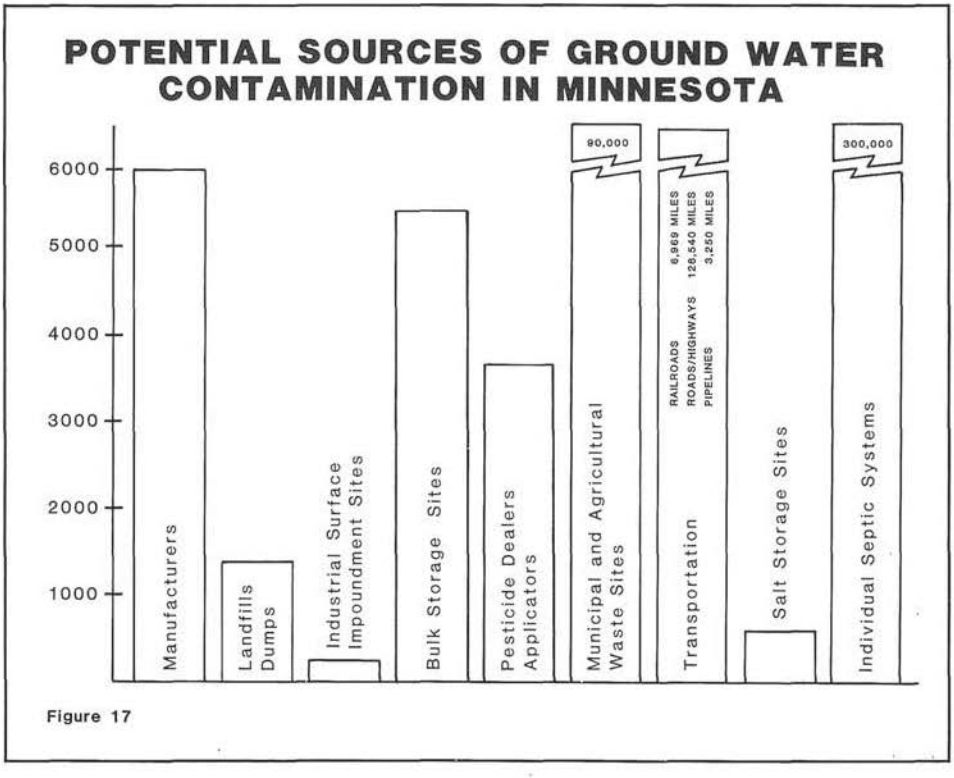


Figure 17

Ground water is an abundant, valuable and vulnerable resource in Minnesota. Two-thirds of the state's population rely on ground water for drinking water. Though its importance has long been recognized, the full effects of above-ground activities on the resource continue to become evident in the 1980s. Current MPCA activities cover a wide range of ground-water protection issues, including coordinating the development of a comprehensive ground-water protection strategy through a multi-agency work group.

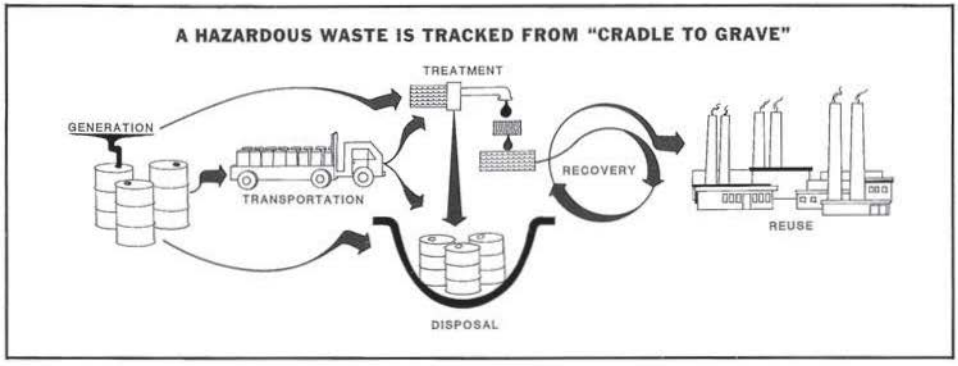
The MPCA's hazardous waste program began in 1974 when the legislature passed the first laws requiring proper management of hazardous wastes. In 1979, the Agency

published the hazardous waste rules containing the cradle-to-grave regulatory system. The national program was just a step behind. Congress passed the first hazardous waste regulatory act in 1976, and in 1980 the EPA published its own version of the hazardous waste rules.

Numerous rule revisions followed, aimed at making Minnesota's rules equivalent to the changing federal regulations. The state's current hazardous waste rules became effective in 1984; and in 1985 Minnesota became the first state in the Great Lakes region to be formally authorized to regulate hazardous waste in lieu of the federal government. This milestone was welcomed by industry, which until then had to comply with two sets of hazardous waste rules.

The MPCA's hazardous-waste regulatory system requires those who handle hazardous waste to report their activities to the MPCA and develop plans for proper hazardous-waste management. The agency reviews the plans and provides assistance when necessary. Hazardous-waste handlers must also receive MPCA permits, which are enforced by regular inspections.

The manifest is the key element in keeping track of hazardous wastes. This document accompanies wastes from the point at which they are generated to their final destination. It is signed by the generator, the transporter and the receiving facility, and copies are sent to the MPCA by both the generator and the facility accepting the wastes. A computer system tracks the shipments



to be sure they are received by the facility named.

The state Superfund was enacted by the legislature in 1983. The law's objectives are to protect the people of Minnesota from exposure to improperly disposed of hazardous waste and, equally important, to

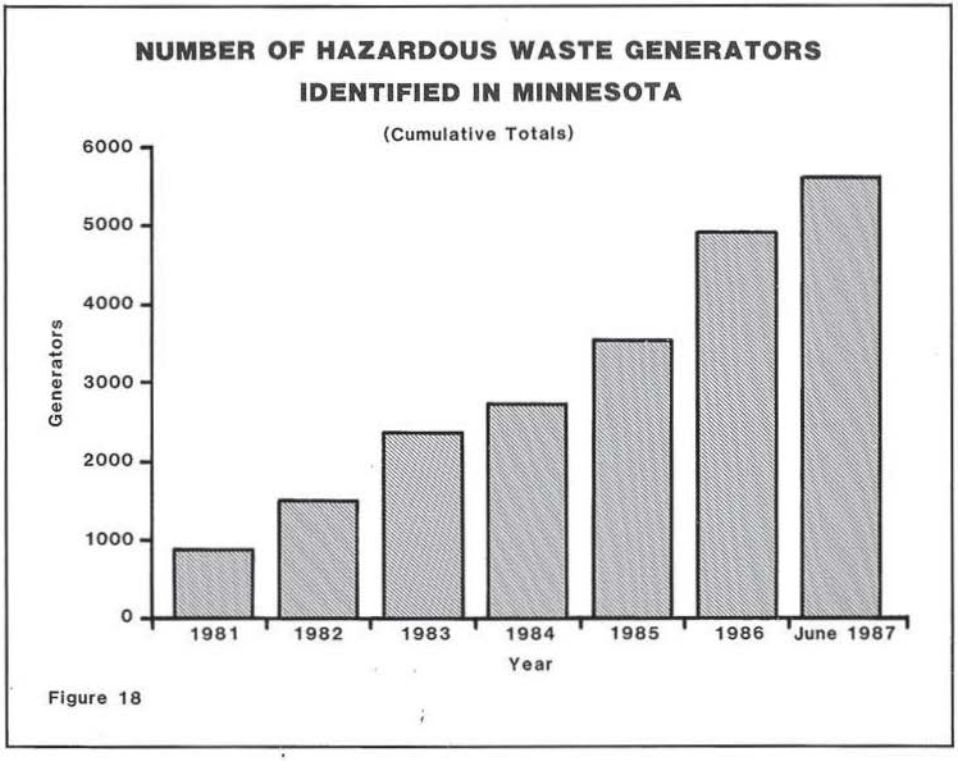


Figure 18

preserve and restore the important ground-water resources of the state. Emphasis is placed on giving responsible parties the opportunity to clean up.

The state Superfund law gives the MPCA authority and resources to compel those who are responsible for environmental or human health-threatening hazardous wastes to clean up the site. If they cannot or will not, the Agency can remedy the problem itself and collect its costs from the responsible parties later.

The Minnesota Superfund has achieved remarkable results in its four years. Safe drinking water has been supplied to residents of 12 communities, and 250 above-ground arsenic caches have been cleaned up. At 50 sites responsible parties are undertaking investigations leading toward cleanup, and the MPCA is investigating 23 sites under the state or federal Superfund programs.

Drums of hazardous waste excavated from an illegal dump site await shipment to a permitted facility outside Minnesota. This expensive cleanup could have been avoided with careful "cradle-to-grave" hazardous-waste management.

More than 25 major cleanups are either completed or in place. More than $100 million of private-sector funds have been committed to cleanup. The program has also allowed the Agency to follow up on suspected sites, resulting in a priority list of 130 confirmed hazardous waste sites as compared to 60 in 1983.

State Superfund arsenic projects

Arsenic was used in the 1930s and 1940s to control a serious grasshopper infestation in the Upper Midwest, but at that time no provision was made for proper disposal of the leftover arsenic and arsenic-laced bait. In many cases it was kept in deteriorating containers and decaying outbuildings. In some cases, it had been buried. The Minnesota Superfund has enabled the MPCA to clean up buried arsenic that had created a threat to human health and the environment in Perham and near Wadena, excavating the contaminated soil and shipping it to a secure out-of-state hazardous-waste landfill.

The MPCA also conducted a statewide campaign to encourage people who knew of stored or buried arsenic to report it to the Agency. After confirming that stored materials were arsenic, the MPCA collected approximately 75,000 lbs. of arsenic from 250 locations for safe disposal outside Minnesota. Reports of buried arsenic were followed up at once to ensure that no immediate hazard existed, and the MPCA will investigate the sites further in the future.

Realizing the diverse nature of Minnesota's economy, natural resources and population, the Agency established five regional offices in its early years in order to provide access to MPCA programs in each area of the state. Their locations in greater Minnesota make it readily possible for Agency staff in regional offices to meet face-to-face with the public they serve. Regional staff also inspect operations that have MPCA permits and respond to spills and other local pollution issues.

Regional office addresses and telephone numbers are listed on the back cover.

"Our real role is to maintain interaction between the clientele the Agency affects and the Agency itself. That person-to-person linkage is vital to ensure that the programs we acquire through legislation accomplish what is intended and meet the specific needs of each part of the state."

Larry Shaw
Director of Regional Operations

MPCA staff listen to concerns of officials in southwestern Minnesota. The Agency's regional office staff help citizens with local pollution issues and provide access to programs and services in the St. Paul office.

HISTORY AT-A-GLANCE

"The nature of the business is such that we cost certain people money they would rather keep, and we never satisfy the blue-sky idealists. If we are performing our task responsibly, we are probably making everyone equally mad at us. What a way to be a success! However, if we ever get to the point where we were being praised by any one segment, it's time to inventory the program, because the balance is gone."

Lovell Richie
MPCA staff 1967-1987
Deputy Executive Director
Senior Executive Officer

1967-1968	1969-1970
MPCA established; given authority formerly held by the Water Pollution Control Commission, added authority for air-quality control and solid-waste management. Twenty-six people transfer from Minnesota Department of Health to MPCA. MPCA director given seat on Soil and Water Conservation Commission. MPCA authorized to grant pollution control investment tax credits. Air monitoring begins, June 1968.	Law enacted requiring persons to notify MPCA of discharges and to recover pollutants. Water-quality standards adopted. Agency authorized to enforce orders and permits and to direct immediate discontinuance if imminent and substantial danger results. U.S. Environmental Protection Agency created. First air-quality standards adopted in 1969; first continuous air-monitoring station established 1970. Open-burning of garbage banned, by law, August 1970. Federal Clean Air Act enacted, 1970. First national Earth Day observed April 2, 1970. Reserve Mining ordered to comply with MPCA water-quality standards. Solid-waste rules become effective — 1,500 open dumps identified.

1971-1972	1973-1974	1975-1976
Agency authorized to adopt noise pollution standards and regulations. Municipal wastewater treatment construction grants program established. Agency authorized to regulate cleaning agents and chemical water conditioners. Minnesota Environmental Rights Act enacted. Agency given authority over disposal of abandoned motor vehicles; auto hulk program established. Feedlot regulations approved March 1971. Air pollution alert announced in Twin Cities metro area. Federal Water Pollution Control Act enacted. Five MPCA regional offices established. 250 bills in Minnesota Senate deal with environmental issues in 1971.	Legislature establishes Minnesota's environmental policies and goals. Grant program authorized to encourage solid waste recycling, resource recovery. Agency authorized to review packaging and ban over-packaged products; packaging rules adopted. Agency authorized to regulate hazardous waste management. Regulations established for NPDES and SDS water quality permits; EPA delegates permitting program to MPCA. Phosphorous limits set for detergents. MPCA monitors dismantling of Elk River Reactor, begins monitoring radioactive releases from Monticello and Prairie Island nuclear plants. Noise rules established. MPCA studies periphyton growth in Lake Superior relative to Reserve Mining tailings discharge. MPCA sues for wastewater treatment grant funds impounded by President Nixon. Spills Unit established in Water Quality Division. EPA announces Duluth drinking water contaminated by asbestiform fibers, June 1973. Reserve Mining trial begins in August, leading to 1974 federal shutdown order. Order appealed successfully; Court of Appeals affirms health hazard, orders Duluth water supply filtration, sets dumping time limits.	MPCA adds Hazardous Waste Section to Solid Waste Division. MPCA receives EPA grant to study land disposal of hazardous waste. Air Quality rules amended to allow diseased shade-tree burning sites. MPCA and Department of Natural Resources draft Environmental Impact Statement on Reserve Mining's Mile Post 7 disposal basin. Active open dumps now total 255. PCBs found in Mississippi and Minnesota River fish; MPCA Board calls for federal ban on sale and use of PCBs. Natural gas cut-off to industrial and commercial users forces switch to coal, degrading Twin Cities air quality. Industry lawsuit prevents enforcement of packaging rules. PCI incinerator in Shakopee closes down.

HISTORY AT-A-GLANCE

"I really haven't been unfairly tough on industry. I've just tried to convince industry people that they, too, are citizens of this state and ought to clean up their act. Some of them have, and I congratulate them on that."

The late Steve Gadler
Member, MPCA Board 1967-1981, 1983-1985

1977-1978	1979-1980
MPCA participates in study of environmental impacts of copper-nickel mining. Western Lake Superior Sanitary District begins operating. Noise barriers erected along freeways. Reserve Mining adds control equipment for airborne emissions. Solid Waste Division reviews chemical waste land-disposal project; candidate sites rejected. MPCA Board revokes first landfill permit, due to ground-water contamination. Water Quality Division begins new emphasis on controlling toxic pollutants. MPCA drafts hazardous-waste rules. Minnesota Supreme Court orders construction of on-land disposal basin for Reserve Mining tailings.	Reserve stops discharging taconite tailings into Lake Superior, March 1980. Agency adopts "208" nonpoint-source program. MPCA conducts demonstration vehicle-inspection and maintenance program in Metro Area; 44 percent of vehicles fail emission inspection. MPCA adopts "cradle to grave" hazardous-waste rules. Waste Management Act passed. MPCA acid-rain investigation authorized. Federal Superfund enacted. MPCA establishes Hazardous Waste Strike Force; 25 dump sites identified.

1981-1982	1983-1984	1985-1987
Agency revises air-quality rules, holds 59 days of formal public hearings, the longest administrative hearing ever. Pinhole-sized leak in Williams Pipeline in Maplewood loses 100,000 gallons of gasoline. Bemidji wastewater treatment issues resolved; permit issued. Hazardous waste cleanup in Isanti County first such use of federal Superfund by any state; PCI cleanup under way in Shakopee. Investigations begin of contaminated soil and ground water from former Reilly Tar and Chemical Corp. site in St. Louis Park. Acid Deposition Control Act passed.	MPCA begins program to identify toxic air pollutants. State Superfund law enacted. Cleanup begins on two major hazardous waste sites, FMC Fridley and the 3M-Oakdale dump. MPCA begins study of underground storage tanks. MPCA encourages reporting of arsenic caches; pickup and disposal follows. MPCA authorized to eliminate waste tire dumps. Ambient ground-water monitoring begins. Legislature requires MPCA certificates of need for new solid waste landfills. Conservation Foundation ranks Minnesota first in nation in environmental effort.	Agency adopts plan to control acid rain, a national first. Permits issued requiring separated storm and sanitary sewers in Twin Cities by end of 10 years. MPCA authorized to conduct hazardous-waste regulatory program in lieu of EPA. Cleanup agreement reached regarding former Reilly Tar and Chemical Corp. hazardous waste site in St. Louis Park. Pilot household hazardous-waste collection programs conducted. MPCA investigates extent and risk of lead contamination of soils. Williams Pipeline explodes in Mounds View; two people die in fire. State enacts new laws to control pipelines, underground tanks, polluted runoff, household hazardous waste; replenishes funds for wastewater treatment grants, state superfund.

THE MPCA FUTURE

"We, the people, are the polluters. As a society, we can determine quality of life we want to maintain. After deciding, we must individually act to maintain that quality of life, and we must also be willing to pay the cost and to be involved."

Duane Dahlberg
Member, MPCA Board 1982-

As the MPCA moves beyond its second decade, it is clear that much progress has been made. A Conservation Foundation study report in 1984 indicated that its staff had found Minnesota ranking first among the states in its effort to provide a high-quality environment for its citizens.

But we today are very much aware of what yet needs to be done, and concern is great because the problems are less obvious. We fear what we cannot see — the invisible parts-per-billion in the air and water that could affect public health, the water pollution resulting not from the discharge at the end of a pipe but from the natural runoff of precipitation heedlessly allowed to carry pollution to our lakes and streams, and the acid rain that falls long distances from the source of air pollutants.

The MPCA must now extend its efforts to newly emerging problems while continuing its traditional pollution control programs. In many cases, these new problems are more difficult to solve, involving complex political, economic and cultural considerations as well as the technical. Information, advice and cooperation from all sectors of society will be necessary if the solutions are to be equitable and effective.

Minnesota residents care about their environment. Public support created the Agency and citizen support for its programs has enabled it to tackle new problems as they became evident. Survey results in a recent First Banks "Quality of Life Report" indicate that the public overwhelmingly opposes relaxing environmental standards.

That enduring public concern demands that the MPCA be unrelenting in its protection of Minnesota's environment. It has become increasingly apparent, however, that much pollution can be prevented best by the individual decisions of Minnesota residents. These decisions include how we will handle our wastes, how we travel, whether we use disposables or reusables and whether we care enough about our lakes and rivers to limit runoff pollution. The following page includes some suggestions on how you can help to combat pollution. With your assistance, we can help protect Minnesota's environment and the quality of life we enjoy.

Photo courtesy of Ramsey/Washington County Resource Recovery Project.

Household sorting of garbage into recyclable items is key to breaking the landfill habit.

Reduce your solid waste output

- Recycle your cans, bottles, paper and motor oil.
- Make a soil-enriching compost pile for leaves, clippings and kitchen scraps.
- Reduce your use of disposable products.
- Don't buy products in wasteful packaging. Buy returnable beverage containers, and fight litter.

Protect water resources

- Don't waste water. Fix leaky faucets promptly and run washers only with full loads. Don't water lawns and gardens wastefully.
- Go easy on fertilizers. Overapplied fertilizers can fertilize algae and weeds when they get into lakes and streams. Use a fertilizer low in phosphorous.
- Make sure your septic system is working properly and not polluting your own well or a nearby lake.
- Join the MPCA's Citizen Lake-Monitoring Program and help collect water quality information on your favorite lake. Call (612) 296-6300.
- Avoid placing hazardous wastes in your trash. Use them up, give them away, or save them for a household hazardous waste collection program.

Keep the air clean

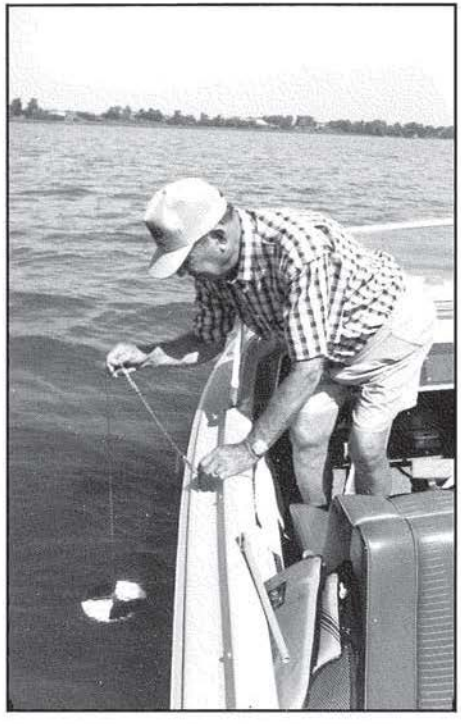
- Avoid unnecessary driving and keep your car tuned — the car is still our worst air polluter. Walk, ride the bus, bike, form car pools.
- Conserve electricity. Even the best power plants are potential polluters.
- If you have a wood-burning stove, be sure you admit enough air for it to burn at a high temperature. Don't burn garbage or trash.

Be a watchdog

- Report pollution problems and suspected violations to the MPCA or your local officials. Call the MPCA at 296-6300 in the Twin Cities metropolitan area or toll-free 1-800-652-9747 outside the metro area, or call your regional MPCA office.

Support strong pollution control laws

- Lawmakers need to know that you care about a clean environment.



Some 400 Minnesotans help the MPCA measure water quality in their favorite lakes through the Citizen Lake-Monitoring Program.

Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155
(612) 296-6300
Toll-free, 1-800-652-9747

Region I — Duluth
Duluth Government Service Center, Room 704
320 West Second Street
Duluth, MN 55802
(218) 723-4660

Region II — Brainerd
1601 Minnesota Street
Brainerd, MN 56401
(218) 828-2492

Region III — Detroit Lakes
Lake Avenue Plaza
714 Lake Avenue, Suite 220
Detroit Lakes, MN 56501
(218) 847-1519

Region IV — Marshall
RLC Building
109 South Fifth Street
Marshall, MN 56258
(507) 537-7146

Region V — Rochester
2116 Campus Drive S.E.
Rochester, MN 55904
(507) 285-7343