

A M E R I C A ' S
**CLEAN
WATER**

The States' Evaluation of Progress 1972-1982

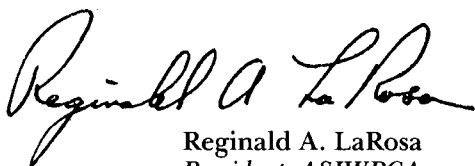
CONTENTS

| | | | |
|---|---|---|----|
| LETTERS | 1 | Treating Industrial Wastewater | 6 |
| Reginald A. LaRosa | 1 | Controlling Nonpoint Pollution | 7 |
| <i>President, ASIWPCA</i> | | | |
| William D. Ruckelshaus | 1 | STATE PROGRAMS | 8 |
| <i>Administrator, U.S. EPA</i> | | Changes Through the Decade | 8 |
| WHAT A DECADE CAN DO | 2 | Regulating Dischargers Significant | 9 |
| | | <i>Wastewater Dischargers</i> | |
| WHAT THE STATES REPORT | 2 | State Compliance and Enforcement | 9 |
| WATER QUALITY | 4 | Current Pollution Problems .. | 10 |
| Streams and Rivers | 4 | <i>Point Source Pollution</i> | 10 |
| <i>Achieving Fishable/ Swimmable Waters</i> | 4 | <i>Nonpoint Source Pollution</i> | 10 |
| <i>Evaluating Water Quality</i> | 4 | <i>Toxic Pollutants</i> | 10 |
| Lakes and Reservoirs | 5 | ISSUES AND CHALLENGES | 11 |
| Estuaries | 5 | LOOKING AHEAD | 12 |
| WHAT HAS ALREADY BEEN DONE? | 6 | GLOSSARY | 14 |
| Treating Municipal Wastewater | 6 | THE STEP PROJECT | 16 |
| <i>Reducing Municipal Pollutants</i> | 6 | | |
| <i>What Has It Cost?</i> | 6 | | |

During the past several decades, the people of the United States have devoted substantial resources to restoring and maintaining water quality. Local, State, and Federal governments have undertaken a variety of programs towards this goal. Yet until now, no system had been developed to produce a brief, comprehensive report to the American public on the progress being made toward achieving cleaner water.

In 1982, the Association of State and Interstate Water Pollution Control Administrators and the U.S. Environmental Protection Agency joined together to produce such a status report. Through an 18 month effort, State and Federal environmental managers worked cooperatively, first to design a system for reporting on surface water conditions and then to produce this report.

AMERICA'S CLEAN WATER reflects data from 56 reports provided voluntarily by State, Interstate and Territorial water pollution control agencies; it portrays the State perspective on the accomplishments of the Clean Water Program and the value derived from the tax dollars and private investments made by the American people to restore and enhance the quality of our Nation's waters.



Reginald A. LaRosa
President, ASIWPCA

When we began this project, our intention was to reduce the States' reporting burden and enable a consistent assessment of surface water quality across the nation. I am pleased to see that this effort has achieved the original objectives and also resulted in a broader accomplishment.

This report represents the first time that EPA and the States have agreed on a set of measures to describe progress in carrying out the mandates of the Clean Water Act. Such information is the core of an effective State/EPA relationship where States operate the programs and EPA provides support and ensures national consistency. With this as a base, we can now move forward to develop additional measures needed to cover such areas as groundwater, estuaries, toxics, and nonpoint pollution. We are also in a position to integrate these measures into other existing and future reporting mechanisms.

AMERICA'S CLEAN WATER represents a significant accomplishment. We have documented the steady progress in water quality and provided a solid base of information which will enable us to work together to address future and emerging problem areas. I am pleased that we have established such a successful collaboration with our State partners and I look forward to a continuing productive relationship with the States and with ASIWPCA.



William D. Ruckelshaus
Administrator, U.S. EPA

**TO THE
READER**

WHAT A DECADE CAN DO

The news is good. The water is cleaner.

Ten years ago, reports were all too frequent of fish disappearing from rivers and streams, lakes choked with algae, and beaches posted against swimming or shellfishing.

Recognizing that there was no standardized approach to cleaning up surface waters, Congress set America on a course "to restore and maintain the chemical, physical and biological integrity of the Nation's waters" through the Clean Water Act of 1972.

The States, who have "the primary responsibility and rights" to prevent, reduce, and eliminate pollution under the Act, are now reporting back to the Congress, to State leaders, and to the public the results of their efforts from 1972 to 1982.

In a decade when the nation's population grew by 11% accompanied by a sizeable increase in the use of surface waters for industry and recreation:

- 47,000 stream miles have improved in quality;
- 390,000 acres of lakes show improved water quality;
- 142 million people are receiving secondary or more advanced levels of sewage treatment, up from 85 million in 1972; and
- cities and industries have substantially increased compliance with their limits on waste discharges.

This comprehensive report about the Nation's surface waters shows that the tremendous investment of resources by State, Local and Federal water pollution control agencies and the expenditures by wastewater dischargers are paying off. Even with substantial increases in the number of waste sources, pollution of the country's streams and lakes is

being reduced. Most of our water has maintained its quality despite the pressures of wastes from more people and more industry. Other waters have shown dramatic improvement, while some have been degraded.

The report also emphasizes that even as old problems continue to demand careful attention, new problems—such as toxic pollutants and groundwater contamination—are appearing on the horizon.

The findings in AMERICA'S CLEAN WATER about the status of water quality are drawn from 56 reports prepared between June and October 1983 by States, Territories and Interstate Agencies. The complete reports can be found in the Appendix, available from ASIWPCA.

The methods used to reach the conclusions that follow and the number of reports reflected in each calculation can be found in a "Statistical Summary" also available from ASIWPCA.

WHAT THE STATES REPORT

America is rich in water resources. States report a total of 1.8 million miles of streams and 33.4 million acres of lakes and reservoirs.

Findings in this report reflect the States' evaluation of 42% of the Nation's streams—758,000 stream miles. Of these, roughly 169,000 miles of streams were monitored in 1982 for long-term trends in water quality.

The States also evaluated nearly half (16,320,000 acres) of the nation's 33,450,000 acres of publicly owned lakes and reservoirs. The quality of 9.7 million of these acres was monitored for trends in 1982.

Some States evaluated up to 100% of their surface waters, others assessed a limited part. The propor-

Of the nation's 1.8 million miles of stream, 58% are generally free from known water quality pollution problems. The remaining 42% (758,000 miles) discussed in this report represents the geographic locations supporting America's population and/or industrial activity.

tion varied from State to State, depending on the amount of waters, the distribution and severity of pollution sources, and the availability of funds for monitoring.

Resources have generally been concentrated on analyzing those waters directly affected by human activities or likely to be used by the public. In some States, this may constitute only 3 or 4% of the total mileage. However, for the most part, the quality of the waters *not* evaluated is believed to be *equal to or better than* that which was assessed.

States reached their conclusions about water quality using a combination of:

- long-term trend monitoring records;
- short-term intensive surveys; and
- professional judgments and direct observations by staffs of pollution control, fish and wildlife, and other natural resource agencies.

4-27-84

Water Quality 1972-1982

Numbers Reflect Stream Miles



296,000 Maintained

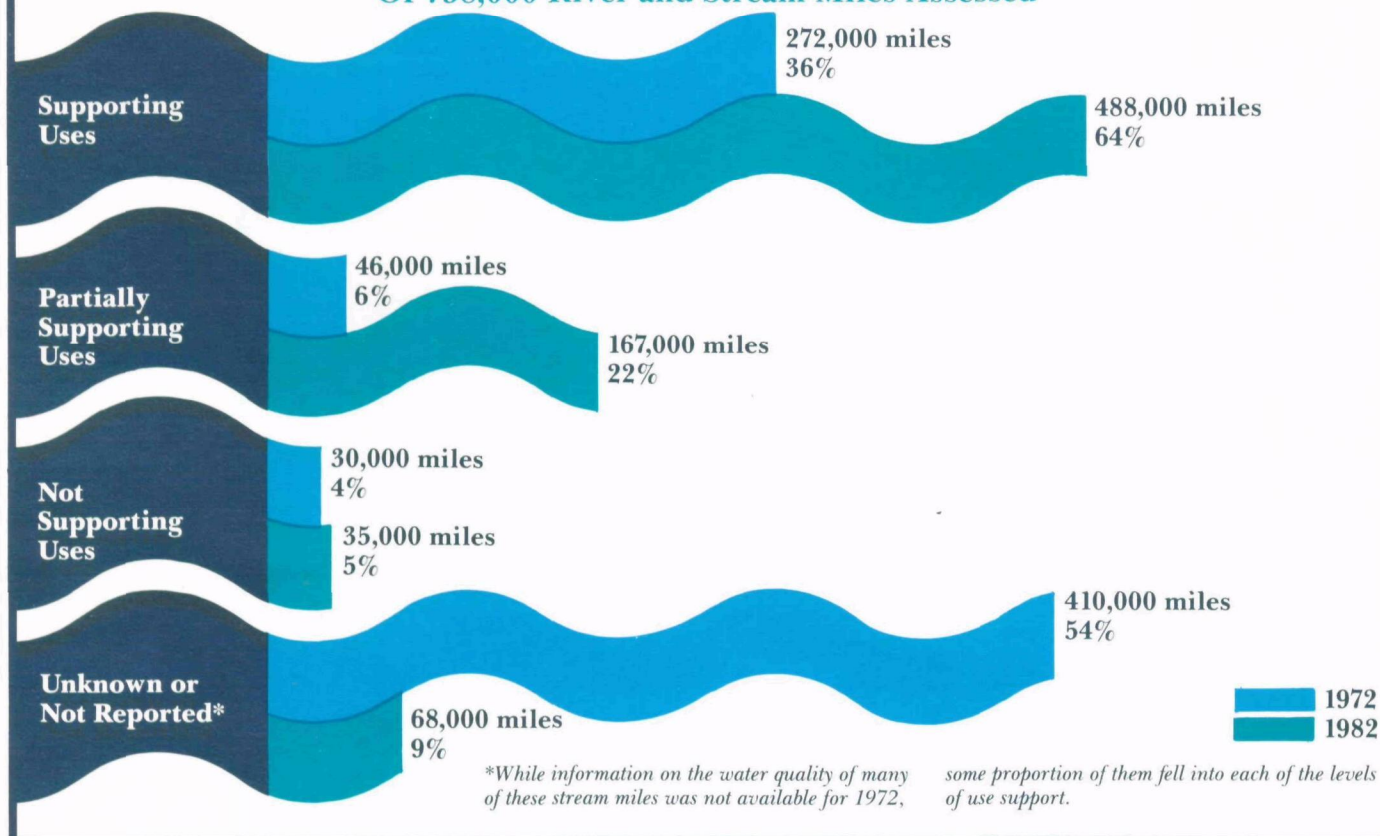
47,000 Improved

11,000 Degraded

In the 49 States that reported on water quality conditions between 1972 and 1982, 296,000 miles of streams were reported to have maintained the same water quality, 47,000 miles improved, and 11,000 miles have been degraded.

Stream Water Quality 1972-1982

Of 758,000 River and Stream Miles Assessed



WATER QUALITY

STREAMS AND RIVERS

Achieving "Fishable/Swimmable" Waters:

The Clean Water Act establishes as a goal Fishable/Swimmable water quality "providing for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water" "wherever attainable." Most of the Nation's surface waters have these uses designated as their ultimate quality targets.

Over 120,000 stream miles are designated for uses more stringent than Fishable/Swimmable, such as

drinking or food processing. Only 32,000 miles have stream standards set for less stringent uses.

Evaluating Water Quality:

States evaluate the quality of their waters by the extent to which these waters support the uses for which they have been **designated**. [Terms shown in **bold** are defined in the Glossary, page 14.]

These uses, which can include fishing, public water supply or agriculture, and the levels of quality necessary for their maintenance, are the components of **water quality standards**. Standards are established by each State in accordance with requirements of the Clean Water Act and State law. The U.S. Environmental Protection Agency (U.S. EPA) is

responsible for overseeing compliance with the Federal law.

States made significant accomplishments in water quality between 1972 and 1982. In the States that reported on water quality changes over this decade:

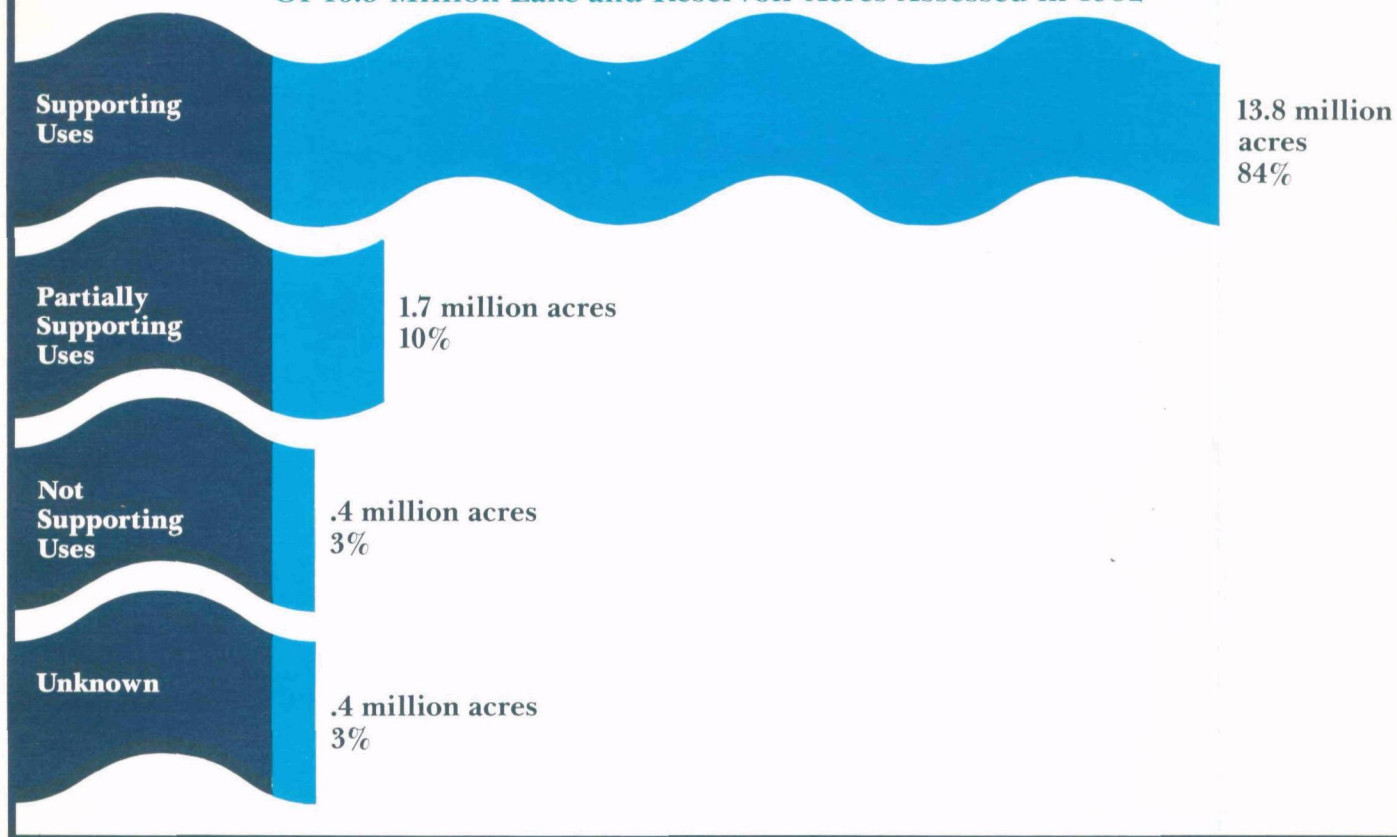
- 296,000 miles of streams maintained the same quality;
- 47,000 miles improved; and
- 11,000 miles were degraded.

Changes for another 90,000 miles were reported to be unknown.

The *maintenance of water quality during the past decade represents a major accomplishment* in itself. The nation's population has grown 11%, and in many areas, surface water use for industry, resource development and recreation has increased dramatically. Growing populations and

Lake Water Quality 1982

Of 16.3 Million Lake and Reservoir Acres Assessed in 1982



development pressures often result in increased generation of domestic wastewaters and industrial wastes that must be managed. Sizeable investments in better waste treatment processes have been made by dischargers, and government agencies have devoted substantial time, effort and resources to assure that the monies spent contributed to achieving the goals of the Clean Water Act.

While the past decade's changes reflect significant accomplishments, many streams have yet to achieve the level of water quality needed to support their designated uses fully. 64% of stream miles fully supported their uses in 1982. 22% provided partial support, and 5% did not support their designated uses. Simply stated, many streams assessed in 1982 still

have water quality problems which prevent full use support.

LAKES AND RESERVOIRS

During the past decade, many pollution control agencies increased their emphasis on evaluating and resolving lake water quality problems. Based on their findings about trends during this period, program managers recognize that further attention to these problems will be necessary in the years ahead.

Between 1972 and 1982, States found that:

- 10,130,000 lake acres maintained the same quality;
- 390,000 acres improved in quality;

- 1,650,000 acres were degraded; and
- 4,150,000 acres were unknown or not reported.

ESTUARIES

Seventeen States reported on changes in the water quality of their 17,330 square miles of **estuaries**. In the decade between 1972 and 1982:

- 12,800 square miles (74%) maintained their quality;
- 3,800 square miles (22%) showed improvements;
- 560 square miles (3%) were degraded; and
- 170 square miles (1%) were unknown.

WHAT HAS ALREADY BEEN DONE?

Water quality gains throughout the country have been achieved by a combination of State, Federal, and Local programs.

TREATING MUNICIPAL WASTEWATER

The provision of adequate municipal wastewater treatment to a growing population has been one major accomplishment of the past decade. In addition, the level of sewage treatment provided to the American public rose enormously.

With only a modest \$260 per capita expenditure for municipal sewage system capital costs, noticeable improvement in water quality can be demonstrated nationwide between 1972 and 1982.

Of the approximately 224 million people in the United States in 1982:

- 142 million were served by the generally required **secondary treatment** or by more advanced levels; this reflects an increase of 57 million people since 1972.
- Approximately 23 million people were served by treatment facilities which provide less than secondary treatment.
- The population served by sewer lines carrying raw wastewater to streams dropped from 5 million in 1972 to 1 million.
- The number of people requiring but not receiving public sewage collection and treatment dropped from 21 million to 14 million.
- 44 million people did not need municipal sewage systems because they were adequately served by on-site disposal systems.

Reducing Municipal Pollutants:

Upgrading the level of sewage treatment produces direct benefits by reducing pollutant discharges to waterways. The most widely used measure of municipal pollution is the extent to which the treated waste's organic content depletes the receiving water's oxygen, reducing the amount available to fish and other aquatic life. This municipal organic pollution decreased dramatically during the past decade. Treatment capabilities increased at a higher rate than the nation's population grew.

What Does it Cost?:

While substantial investments have already been made in controlling municipal wastewaters, the States and U.S. EPA have determined in the 1982 "Needs Survey" that \$118 billion are still required to meet public wastewater system needs.

TREATING INDUSTRIAL WASTEWATER

Industry has responded positively to the mandates of the Clean Water Act. During the past decade, industrial dischargers have invested heavily to reduce their water pollution. While total expenditures were not available in each State, there are numerous reports of improved water quality resulting from reduced discharges.

Under the Act, industries must meet discharge limits based on the "best practicable" and "best available" treatment technologies as defined by U.S. EPA. One key measure of industries' cleanup effort and progress is the greatly increased level of their compliance with State or Federally established discharge limitations, especially for plants with the largest wastewater flows.

4-27-84

CONTROLLING NONPOINT SOURCE POLLUTION

States have given increasing attention during the past ten years to *nonpoint source pollution*—diffuse runoff of pollutants from various sites, such as mines, city streets and agricultural lands. State and Local governments have conducted studies to evaluate the extent of these problems and then have emphasized citizen education and demonstration projects to promote use of the best management practices available to reduce or prevent runoff.

Since the nature of the problem varies markedly from site to site and over time, State control programs are also highly variable.

Agricultural nonpoint pollution is generally being addressed through voluntary programs. Cost-sharing is used in critical areas of several States to promote installation of suitable controls. Cooperative programs that coordinate the water pollution control agency and the U.S. Soil Conservation Service or local Conservation Districts are being used to advantage in many areas.

Control of urban runoff is also generally instituted voluntarily. In a few instances, States have adopted legislation enabling or requiring localities to manage their stormwater with the State agency providing technical assistance.

Nonpoint pollution from mining and construction activities are the only categories that are commonly subject to State regulation. In the case of mining, both active and abandoned sites must be addressed. In some instances, Federal mine land reclamation programs are being used to deal with drainage from abandoned mines. Over a dozen States report they use some type of erosion and sediment control legislation to mandate reduction of construction site runoff.

Municipal Sewage Plant Performance 1972-1982

Oxygen-Demanding Pollutants Entering Plants

1972

1982 12% increase

Oxygen-Demanding Pollutants Leaving Plants

1972

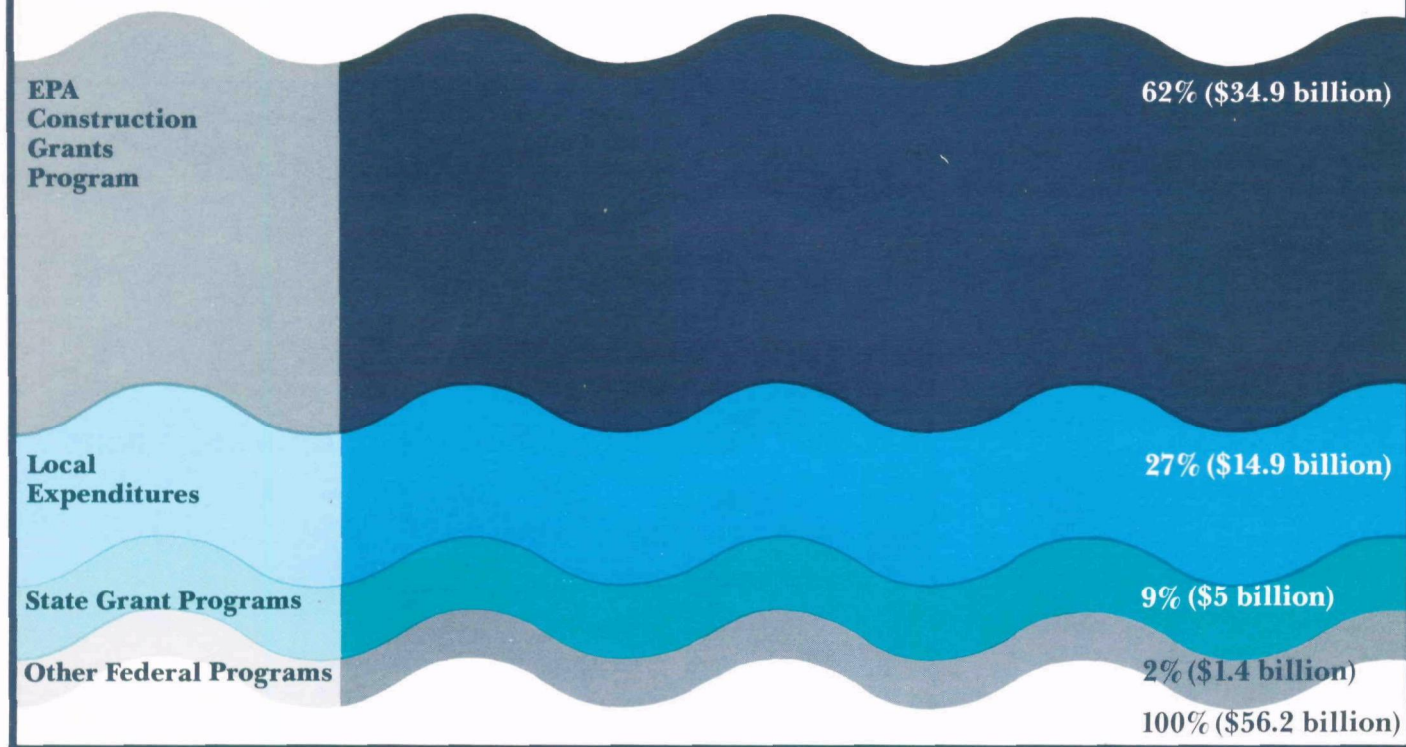
1982 46% decrease

1982 (est.) 191% increase
without improvements to existing facilities

Between 1972 and 1982, the amount of oxygen-demanding pollutants entering the nation's sewage plants grew by 12%. During that same span, the amount released into waterways dropped by 46%. Had treatment capabilities not improved at a faster rate than the nation's population was growing, States collectively estimate that 1982 discharges would have been greater than 191% the levels actually discharged.

National Costs for Sewage Treatment 1972-1982

Capital Costs for Publicly Owned Wastewater Facilities



Of the over \$56 Billion in public funds invested: \$34.9 Billion comes from the US EPA construction grant program, \$14.9 Billion are local expenditures to match federal funds or independently construct facilities, \$5 Billion States provided in the form of grants or loans, and \$1.4 Billion was under other Federal programs (e.g. Department of Housing and Urban Development, USDA's Farmers' Home Administration, and the Economic Development Administration).

STATE PROGRAMS

CHANGES THROUGH THE DECADE

State water quality programs have undergone a marked change in emphasis in recent years. In the period just after 1972, administrators concentrated on establishing or improving regulatory permit programs to limit municipal and industrial discharges to streams and rivers. Attention during those years focused on pollutants that had been known for some time to harm water quality or public health.

Later in the decade and into the 1980's, the focus has been broadened to identify and control nonpoint source pollution, to measure and reduce **toxic pollutants** from point and nonpoint sources, and to protect groundwater resources. During recent years, attention in many States has also expanded from streams and rivers to increase emphasis on lake quality.

REGULATING DISCHARGERS

The regulation of municipal and industrial point source dischargers has been a continuing focus of State pollution control programs. While a number of States had regulatory systems prior to the 1970's, the 1972

Clean Water Act required virtually every point source to obtain either a federal or State permit specifying its allowable discharge limits. Thirty-six States now administer pollution control permit programs. In the remaining States, dischargers obtain permits from the U.S. EPA.

Significant Wastewater Dischargers:

In 1982, more than 22,000 permits to municipalities were in effect, nationwide. 16% of these, or 3,600, were to **Significant Facilities**.

There were 4,500 Significant Industrial Facilities. These constituted 11% of the 41,000 industrial facilities holding State or Federal permits in 1982.

In managing regulatory enforcement programs, States concentrate

their attention on facilities in **Significant Non-Compliance**. For the purposes of this report, facilities that were not in significant non-compliance were deemed to be in compliance.

The proportion of significant industrial and municipal dischargers in compliance with the treatment levels required of them in 1982 increased substantially during the past decade. This finding parallels trends recorded by U.S. EPA.

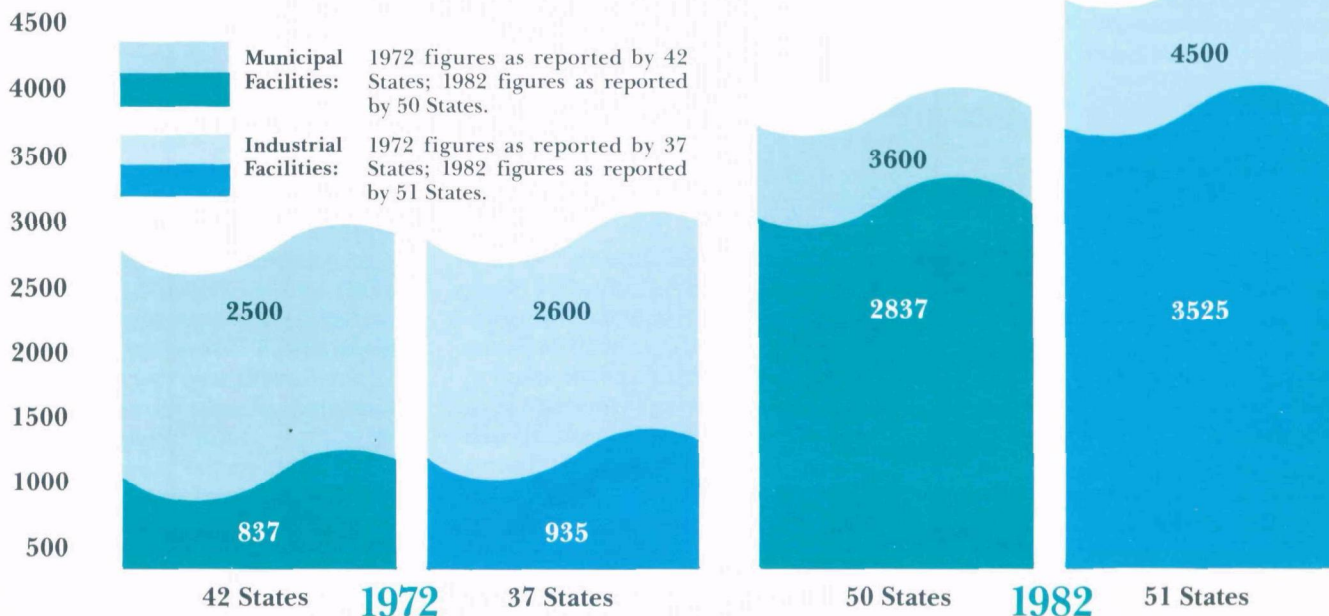
STATE COMPLIANCE AND ENFORCEMENT PRACTICES

Virtually all States use a tiered approach to enforce pollution control requirements. In such systems, the

**Facilities in Compliance are defined as those not in Significant Non-Compliance. U.S. EPA's definition of major dischargers and means of measuring compliance differ slightly from those included in this report.*

Compliance by Municipal and Industrial Facilities

Significant Municipal and Industrial Facilities Not in Significant Non-Compliance with 1982 Requirements*



primary emphasis is on achieving compliance by cooperation. The first step of enforcement for infrequent or minor violations of allowable discharges is usually a type of pre-administrative action that includes notification of the violation often accompanied by technical assistance.

When compliance is not achieved by these means, or for more serious violations of discharge limits or schedules for installing facilities, administrative actions may be necessary; these can include the assessment of civil penalties through consent or administrative orders, permit denials, or the imposition of sewer connection bans. Judicial action is generally used as a last resort for extended or severe violations.

Among 1,223 significant facilities reported to be in significant non-compliance with their permits in 1982, 61% were subject to pre-administrative action; 23% to administrative action; and 11% to judicial action during the course of the year.

These figures do not include enforcement actions taken by U.S. EPA. It should also be noted that in some instances—depending on the violator's responses—subsequent action may have been taken by the State during 1983.

CURRENT POLLUTION PROBLEMS

As noted above, despite the advances made in reducing pollution discharges over the past decade, 27% of the stream miles evaluated in 1982 did not fully support their designated uses. States have estimated the principal pollution sources for those waters by ranking them in terms of the relative percent of stream miles affected. Reduced quality was attributed to nonpoint sources, municipal wastewater facilities, industrial dischargers, or other sources such as naturally occurring substances.

While these various pollution sources may cause less than full support of designated uses, they do not necessarily preclude uses.

Municipal sources—generally sewage treatment systems—were ranked first by 19 States, while 20 others considered them the second major cause limiting full support of uses. Industrial point sources were ranked first by only 3 States and 24 reports gave these sources the third highest ranking. Nonpoint sources were ranked first by 26 States and second by another 13. The results for lakes and reservoirs showed essentially the same pattern.

Point Source Pollution:

The primary pollutants discharged by municipal and industrial sources differ. Ensuring control of these discharges has been and remains a major focus of State program managers' attention.

For municipal wastewater treatment facilities, the components of major concern have been those that reduce the oxygen levels of the waters to which they are discharged, disease-related bacteria, and nutrients that stimulate undesirable growth of algae.

Pollutants that reduce oxygen levels are also among the most significant industry-related water quality problems according to many reports. But toxic pollutants are judged the key industrial pollutant concern by an even greater number of States.

Nonpoint Source Pollution:

In contrast to the discharges from point sources, particularly of municipal wastewaters, that occur 24 hours a day, 365 days per year, nonpoint source discharges are intermittent. The resulting pollutant loadings to streams may have less potential for affecting designated uses.

States evaluated the severity and geographic extent of nonpoint source pollution from various sources. In judging 'severity' States considered the degree to which each

source impaired designated uses; the proportion of waters affected by a particular source was evaluated as 'geographic extent.'

The nonpoint source pollutants most seriously affecting water quality in most States are suspended particles of solid materials, chemical nutrients (nitrogen and phosphorus) that promote undesirable growth of algae, waste-related bacteria, and pesticides and heavy metals, often considered toxic pollutants.

Because of its diffuse nature, nonpoint source pollution has been difficult to define and measure. It occurs intermittently, often in association with heavy rainfall, and many sources can contribute to any one problem. The complexity of demonstrating the effectiveness of particular control practices has also made it difficult for Federal, State and Local governments to prevent and control such pollution.

Toxic Pollutants:

Fourteen thousand stream miles in 39 States have been affected by toxic materials from point and nonpoint sources as well as naturally occurring chemicals such as mercury, arsenic, or lead.

Sixteen States report that toxic pollutants have had adverse water quality impacts on 638,000 acres of their lakes.

Approximately 920 square miles of estuaries in 8 States were considered to be adversely affected by toxic pollutants.

These numbers may understate the full extent of toxic pollution, because the States' assessments were focused on known acute situations or identified "hot spots."

Knowledge of the extent and effects of toxic pollutants has increased fairly recently, so State programs for monitoring, establishing control strategies for toxicity elimination and regulating discharges of these materials are still maturing.

Nonpoint Source Pollution

The results from the 45 States reporting on Severity and Geographic Extent were:

| TYPE OF SOURCE | SEVERITY | | | GEOGRAPHIC EXTENT | |
|---------------------|----------|----------|-------|-------------------|-----------|
| | Severe | Moderate | Minor | Widespread | Localized |
| Agricultural | 16* | 20 | 8 | 29 | 12 |
| Urban | 11 | 20 | 12 | 8 | 35 |
| Mining | 15 | 10 | 13 | 2 | 36 |
| Land Disposal | 12 | 11 | 17 | 5 | 35 |
| Construction | 6 | 23 | 14 | 7 | 34 |
| Dams and Channels | 7 | 18 | 14 | 5 | 33 |
| Forests | 4 | 7 | 21 | 6 | 27 |
| Saltwater Intrusion | 2 | 9 | 10 | 1 | 21 |

*numbers refer to states

ISSUES AND CHALLENGES

While much has been accomplished through water pollution control programs, several significant problems still require attention and resolution.

Municipal Wastewaters:

Various aspects of the comprehensive municipal water pollution control program were reported as special concerns by 29 States during the past decade. 47 reports cited components of this program among their major problems in the future. Meeting the challenges will require:

- Obtaining *adequate funds* to build needed municipal sewage facilities, emphasizing innovative methods to finance facility construction, expansion, and replacement;
- Assuring proper *operation and maintenance of facilities* by trained and qualified personnel;

- Developing regulatory programs to assure *pretreatment of industrial wastes* discharged into municipal sewage facilities;
- Controlling stormwater that runs into *combined sanitary and storm sewers*, occasionally overloading treatment plant capacity; and
- Establishing regulatory programs for managing *sludge* produced during wastewater treatment.

Nonpoint Source Pollution:

In looking toward the future, 40 reports noted the necessity of controlling nonpoint sources if water quality is to continue to improve as point sources are better regulated.

Water quality degradation from abandoned industrial operations—particularly mining facilities—was highlighted as one of the problems that will be especially costly to resolve. Other types of nonpoint source pollution, notably runoff of soil, nutrients, and pesticides from agricultural lands and urban runoff, were frequently cited as major water quality problems that will need additional attention.



Groundwater:

47 States regard assurance of adequate groundwater quantity and quality as a primary focus in coming years, up from 27 States that specifically highlighted this issue as a special problem over the past decade.

Groundwater protection cannot be isolated from State attention to toxic pollutants, many of which contaminate groundwater as they percolate into the ground from hazardous waste and former industrial disposal sites. Other frequent causes of groundwater contamination include faulty septic systems, leaking industrial and petroleum storage tanks, and spills.

Toxic Pollutants:

41 States report that identification and control of toxic pollutants is one of the major problems they expect to be confronting in the years ahead. States and the U.S. EPA are developing new approaches to move beyond the Clean Water Act's regulations that mandate use of the best available technology to eliminate toxicity.

ASIWPCA has endorsed incorporating a Toxicity Elimination And Management Strategy (TEAMS) into the national Clean Water Program. Under TEAMS, control programs are to be directed at eliminating toxic effects; the results of biological monitoring are the key determinants in judging such effects.

U.S. EPA has developed an integrated regulatory strategy through which they and the States will use both biological and chemical methods to address toxic pollutants from industrial and municipal sources.

Other Problems:

Many other water quality problems that have warranted special State attention during the past decade are also seen as demanding continuing attention in the years ahead:

- Improvement or maintenance of surface water quality and assurance of adequate quantities;

- development pressures, notably in relation to energy resource development;
- the need to assure adequate protection for specific types of waters, such as high-quality recreation waters, wetlands and coastal zones;
- regional water management to address problems that cross State or national boundaries;
- salinity of surface and groundwaters; and
- acid precipitation.

LOOKING AHEAD

Great progress has been made in national water cleanup during the past decade.

It has been a combined effort. State, Federal and Local Agencies have together carried out the mandates set by Congress in 1972. The public has been supportive and industries have contributed and complied. As a result, America has moved into the 1980's with:

- better water quality in many streams and lakes;
- more waters supporting designated uses;
- more people served by adequate sewage treatment;
- more dischargers complying with their treatment requirements; and
- greater public awareness of water quality and interest in sustaining past gains.

Clearly, however, much remains to be done. There are communities that still need adequate sewage treatment facilities. Ways must be found to ensure the proper operation and maintenance of facilities already built and in use. The effects of toxic pollutants must be better understood and their release into the Nation's waters controlled. Non-

4-27-84

point source pollution must be reduced, and the protection of groundwater must be expanded. A number of water program managers recognize the possibility that further progress in water quality improvement may be both more difficult and more costly to achieve than our accomplishments to date.

Future gains must be achieved while the Nation's population continues to grow. But the past decade

has laid a solid foundation. For the most part, we have maintained our water quality and we have begun to improve it. The majority of States have also improved their systems for evaluating and reporting on water quality.

The progress made toward cleaner water will serve us well as we build on past accomplishments in the years ahead.

Challenges for the Future

MUNICIPAL WASTEWATERS

NONPOINT SOURCE POLLUTION

GROUNDWATER

TOXIC POLLUTANTS

OTHER PROBLEMS



GLOSSARY



Designated Uses

Those water uses identified in State water quality standards which must be achieved and maintained as required under the Clean Water Act. Uses can include cold water fisheries, public water supply, agriculture, etc. For purposes of this report: Uses are **Fully Supported** if monitoring indicates no chemical pollution exists, biological communities are fully supported, and/or the most sensitive designated use is observed to be supported.

Uses are **Partially Supported** if there is minor chemical pollution, the presence of balanced biological communities is uncertain, or the most sensitive use is not supported at a maximum level.

Uses are **Not Supported** if there is major chemical pollution, aquatic communities are stressed or absent, or the most sensitive designated use is severely impaired or impossible.



Estuaries

Regions of interaction between rivers and near-shore ocean waters, where tidal action and river flow create a mixing of fresh and salt water.



Nonpoint Sources

Pollution sources that are diffuse, from which pollutants run off the land. The commonly used categories for such sources are: agriculture, forestry, urban, mining, construction, dams and channels, land disposal and saltwater intrusion.

For purposes of this report, a source was judged: **Severe** if it impaired designated uses;

Moderate if it interfered with, but did not preclude, uses;

Minor if it had minimal effects on designated uses; **Not Applicable** if it did not occur or did not affect designated uses.

Widespread if it affected 50% or more of the State's waters;

Localized if it affected less than 50% of waters.



Point Sources

Discharges into waterways through discrete conveyances, generally pipes and channels. Municipal and industrial wastewater treatment facilities are the most common point sources; these also include overflows of combined storm and sanitary sewers.

Secondary Treatment

Biological processing of wastewater that removes soluble oxygen-demanding materials and suspended solids. The minimum level of municipal treatment generally required under the Clean Water Act.

Significant Industrial Facilities*

Industrial dischargers which have been calculated by States to cumulatively release 95% or more of the total flow from all industrial plants in the State. Except where otherwise noted, these sources are the ones referred to in this report as "Industrial Facilities."

Significant Municipal Facilities

Those publicly owned sewage treatment plants that discharge 1 million gallons per day or more and are therefore considered by States to have the potential for substantial effect on receiving water quality. Except where otherwise noted, these sources are the ones referred to in this report as "Municipal Facilities."

Significant Non-Compliance*

Violations by point source dischargers of sufficient magnitude and/or duration to be considered a regulatory priority. Categories are: violations of requirements resulting from previous enforcement action; violations of permit compliance schedules; and violations of permit effluent limits which have the potential to cause or have caused adverse environmental effects or pose a human health hazard.

Toxic Pollutants

Materials that cause death, disease, or birth defects in organisms that ingest or absorb them. The quantities and length of exposure necessary to cause these effects can vary widely. Organic and inorganic chemicals, including heavy metals, are the most common pollutants of concern, but ammonia and chlorine can also cause toxicity problems.

Water Quality Standards

Requirements authorized by State law which consist of designated uses for all waters and minimum acceptable levels of water quality that will permit achievement of these uses. The criteria can be numerical or narrative. Standards are developed in a public decision-making process and reviewed and approved by U.S. EPA.

*Does not reflect the definition used by the U.S. EPA.

THE STEP PROJECT

This report is the product of the Association of State and Interstate Water Pollution Control Administrators, (ASIWPCA) in cooperation with the U.S. Environmental Protection Agency (U.S. EPA).

ASIWPCA, the national professional organization of State directors who implement the nation's Clean Water Program, has for many years focused attention on the need to improve water quality reporting to more accurately reflect progress toward achieving the goals and requirements of the Clean Water Act.

ASIWPCA's proposal to design a system for streamlined reporting and to develop common definitions for water quality evaluation resulted late in 1982 in the initiation of a project labeled STEP—the States' Evaluation of Progress in the Clean Water Program.

All States, Territories and Interstate Agencies were asked to complete reports using the STEP system. Because data and records needed to answer many of the questions were limited or unavailable—especially for 1972—the responding States were encouraged to supplement monitoring results with their professional judgment and direct observations. In some cases, data were extrapolated back to 1972 from records gathered later in the 1970's.

The respondents used standardized instructions and formats to derive and display their findings. The national results contained in this report are based on those State responses completed in accordance with the instructions.

The Project's activities were guided by a policy-making Steering Committee and implemented by a Task Force of State and U.S. EPA representatives. Members of these groups merit recognition and appreciation for their contributions toward making the project successful.

THE STEERING COMMITTEE

The Steering Committee was co-chaired by J. Leonard Ledbetter of Georgia, and Roberta (Robbi) Savage, ASIWPCA's Executive Director. State members included: Reginald (Tex) LaRosa (VT), Daniel Barolo (NY), Robert Touhey (DE), Roger Kanerva (IL), Emory Long (TX), Gyula Kovach (KS), Calvin Sudweeks (UT), Ronald Miller (AZ), Harold Sawyer (OR), J. Edward Brown (IA), and George Britton (NGA Subcommittee on Water Management). U.S. EPA was represented by: the Assistant Administrator for Water: Eric Eidsness (October 1982-May 1983) and Jack Ravan; Joseph Cannon (October 1982-July 1983), Associate Administrator for Policy & Resource Management; Lewis Crampton, Director, Office of Management Systems and Evaluation; Lester Sutton (October 1982-March 1983), Region I Administrator; Thomas Eichler, Region III Administrator; Charles Jeter, Region IV Administrator; and Dick Whittington, Region VI Administrator.

THE TASK FORCE

The Task Force, chaired by Carol Jolly, the STEP Project Manager for ASIWPCA, included as its State members: David Clough (VT); Paul Sausville (NY); Robert MacPherson (DE); Jack Dozier (GA); Robert Clarke (IL); Clyde Bohmfalk (TX); Karl Mueldener (KS); Jay Pitkin (UT); Bill Shafer (AZ); and Mary Halliburton (OR). It also included as U.S. EPA representatives: Frederick Leutner (Office of Water); John Wilson (Office of Policy, Planning and Evaluation); Chuck Rossoll (Region I); Billy Adams (Region IV); and Ken Kirkpatrick (Region VI).

Christine Parent served as the STEP Project Assistant. Members of ASIWPCA's staff are: Linda Eichmiller, Deputy Director, and Carol Greenwood, Administrative Assistant.

For further information about ASIWPCA or this report, contact Robbi J. Savage, Executive Director, at (202) 624-7782.

The collection of information during the course of this project was approved by the Office of Management and Budget under I.C.R. Number 2040-0036.

The reporting system used to prepare this document was funded in part by the United States Environmental Protection Agency under Assistance Agreement CX-810589 to the Association of State and Interstate Water Pollution Control Administrators.

This document has been reviewed and approved for publication by the Office of Water and the Office of Policy, Planning and Evaluation of the U.S. Environmental Protection Agency (U.S. EPA). While U.S. EPA believes that the data used form a valid base for a national report, approval does not signify that the contents reflect the views and policies of the Agency.

*Designed by Levine & Rudd, Inc.
Printed by Colortone, Inc.*