AMERICA'S CLEAN WATER

The States' Evaluation of Progress 1972-1982
Appendix

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 towards 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.

INTRODUCTION

This volume is an Appendix to "AMERICA'S CLEAN WATER: The States' Evaluation of Progress, 1972 - 1982". This report to Congress, State leaders, and the public was prepared by the Association of State and Interstate Water Pollution Control Administrators in cooperation with the U.S. Environmental Protection Agency.

The information in AMERICA'S CLEAN WATER was drawn from 56 reports submitted by State, Interstate and Territorial water pollution control agencies. Respondents used a standardized format and instructions to compile and display their findings about water quality.

Below, you will find a summary of the report form, showing the content of each section. This is followed by the 56 submittals, prepared between June and October, 1983. THE 56 REPORTS APPEAR IN ALPHABETICAL ORDER.

The last section of the Appendix is the Instruction package used by the States in completing their reports; it includes the definitions specifically developed for this effort to promote national consistency.

DESCRIPTION OF STEP REPORT

SECTION I ATLAS	Provides background information on physical, hydrological, and population features of each state. Sets the stage for the remainder of the report.
SECTION II AMBIENT WATER QUALITY	Provides comparative information for 1972 and 1982 on extent to which waters support their designated uses. Addresses water quality of streams, lakes, estuaries, ocean coasts and the Great Lakes. Includes trend information on extent to which water quality has improved, been degraded or been maintained. Also identifies pollutant sources by category (industrial, municipal, nonpoint, etc.) and by pollutant (nutrients, bacteria, metals, etc.)
SECTION III POINT SOURCES	Provides information about population served by various levels of municipal wastewater treatment in 1972 vs. 1982 and about extent to which pollutant loading of waters has been reduced as a result of municipal treatment. Compares permit compliance of "significant" municipal and non-municipal facilities in 1972 and 1982.
SECTION IV NON-POINT SOURCES	Includes evaluation of severity and extent of different types of nonpoint source pollution (urban, silvicultural, etc.) and of major pollutants resulting from each source. Allows narrative discussion of nonpoint source problems and control strategies.
SECTION V PROGRAM ELEMENTS	Compares Federal (both EPA and non-EPA), State and Local capital investments in municipal wastewater facilities. Includes narrative discussion of state's program and changes made over past decade. Gives information about enforcement actions taken in 1982 against "significant" facilities in significant non-compliance with permits, and provides narrative description of state's approach to promoting compliance.
SECTION VI SITE-SPECIFIC SUCCESSES	Gives 2 examples of improvements in State water usage or of public benefits resulting from water quality improvements over the past decade.
SECTION VII SPECIAL CONCERNS AND REMAINING PROBLEMS	Gives narrative discussion of any water quality problems emphasized by the state over the past decade that had not been adequately covered in previous sections (e.g. groundwater, wetland protection, etc.). Also describes major problems remaining to be addressed.

MAPS: For 1972 and/or 1982. Legend: Blue = Support Designated Uses
Yellow = Partially Support Uses
Red = Do Not Support Uses

State of ALABAMA*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,444,165 1980 3,893,888
State Surface Area 50,767 sq. miles
# of River Systems/Basins 14
# of River and Stream Miles 40,600 mi.; # of Border Miles* 240 mi.
# of Lakes and Ponds and Acreage 41 / 348,826 ac.
# of Marsh or Wetlands ac./sq.mi. 3,000,000 ac. or _____ sq. mi.
# of Coast Miles 50 mi.
# of Estuary sq. mi. 625 sq. mi.

*Border Rivers:

Name/Mileage Chattahoochee/170 Name/Mileage Tennessee/10

Name/Mileage Perdido/60 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

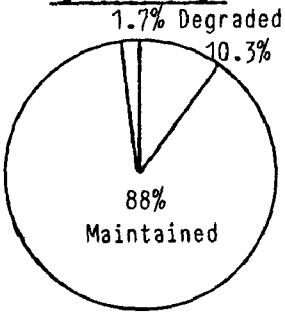
1. a. Miles Assessed: 12,101
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 929
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 629
   d. Miles Monitored: 1,568

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	10,762 mi.	267	1072		12,101 mi.
	88.9 %	2.2%	8.9%		100%
1982	11,372 mi.	206	523		12,101 mi.
	94.0 %	1.7%	4.3%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	53	1,196
Miles Degraded:	195	16
Miles Maintained:	10,641	
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 346,708

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 56,590

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

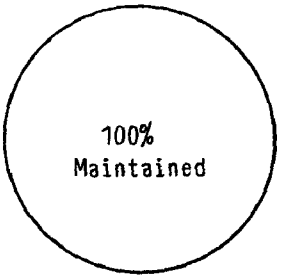
d. Acres Monitored: 39,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	346,708 ac.				346,708 ac.
	100%				100%
1982	346,708 ac.				346,708 ac.
	100%				100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:	346,708	
Unknown:		

C. Estuaries and/or Oceans

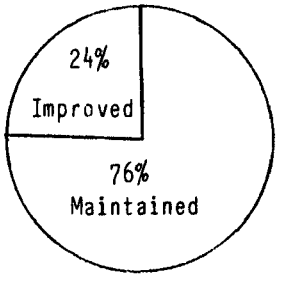
		Estuaries	Oceans (Gulf)
1.	a. Square Miles/Miles Assessed:	625 sq.mi.	/ 50 mi.
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	593 sq.mi.	/ 50 mi.
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	32 sq.mi.	/
	d. Sq. Mi./Miles Monitored:		/ 25 mi.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	442 sq.mi.		183		625 sq.mi.
	71%		29%		100%
1982	593 sq.mi.		32		625 sq.mi.
	95%		5%		100%

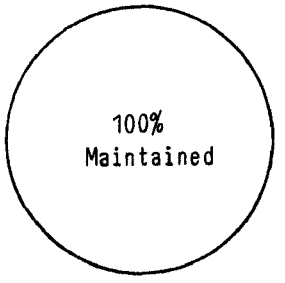
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:		151 mi.
Sq.Mi.Degraded:		
Sq.Mi.Maintained:	474 sq.mi.	
Unknown:		

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:	50 mi.	
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

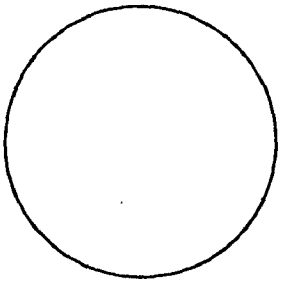
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

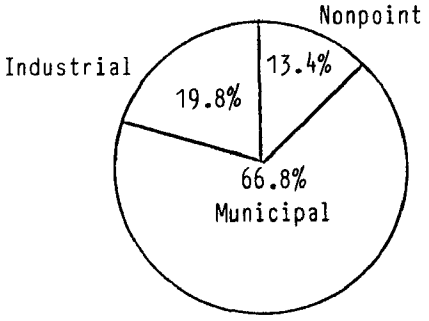


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

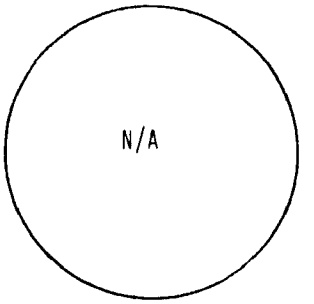
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

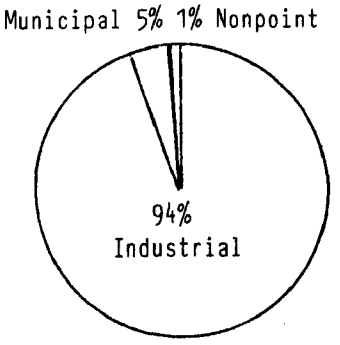
a. Streams and Rivers



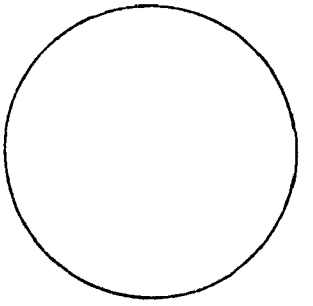
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli/DO
Industrial	X	X		X	X	X	X		Toxics/DO
Non-Point			X	X			X		Nut/Turb
Other (inc. natural)									

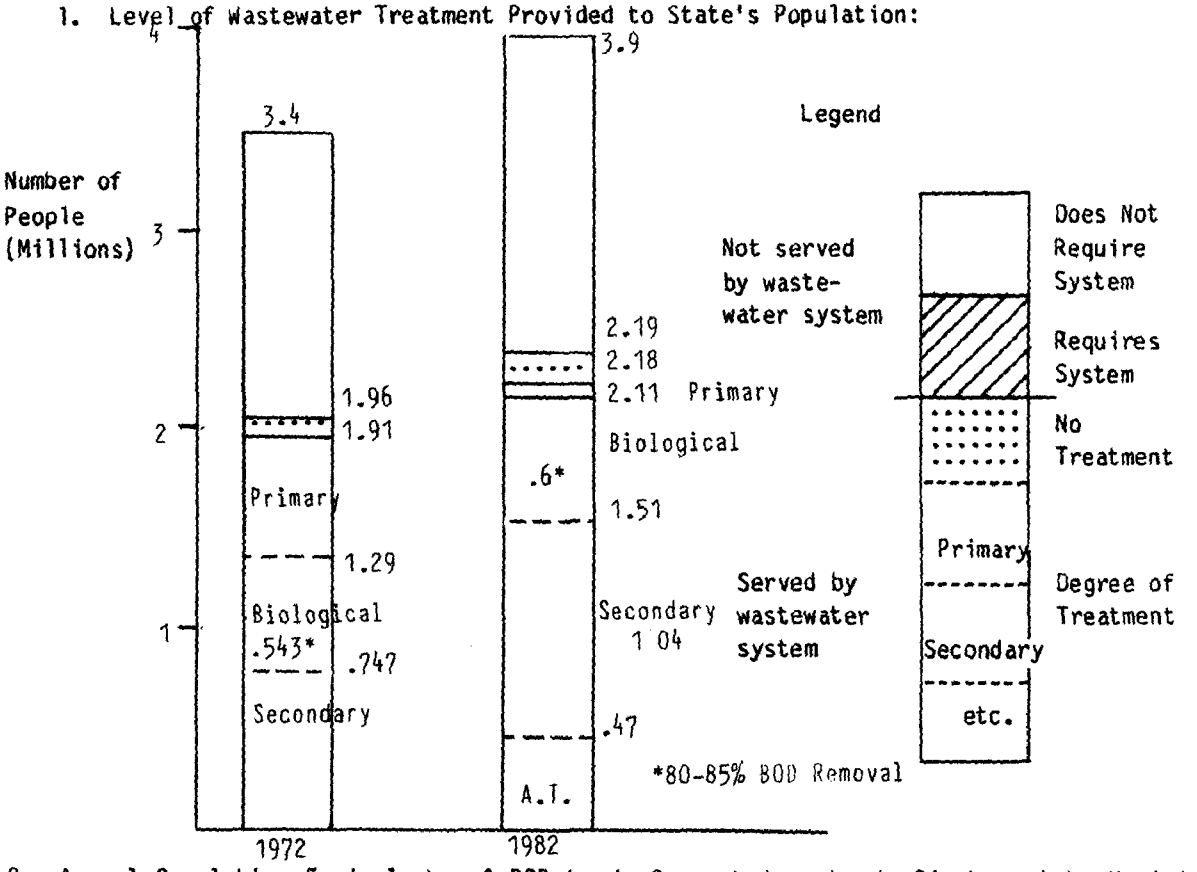
*Number of Stream/River Miles Affected by Toxics: 7
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 0
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

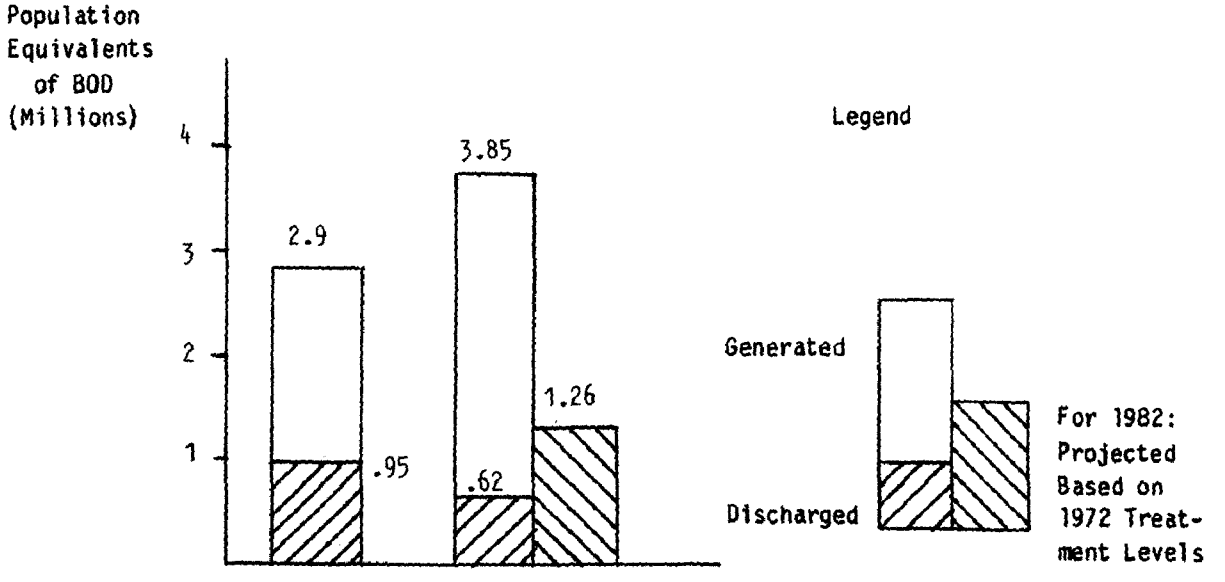
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

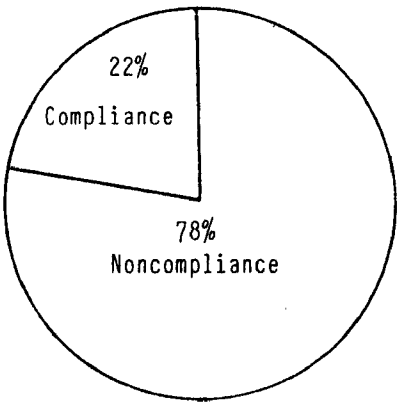
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	60	31	49	
Facilities Meeting 1982 Permit Requirements+	13	27	44	Total Permits in Effect in 1982 246
Percentage of Facilities for Which Requirements Being Met	22	87	90	
Percentage of Flow For Which Requirements Met+	20	71	96	
Facilities Needing Upgrading	47	4	5	

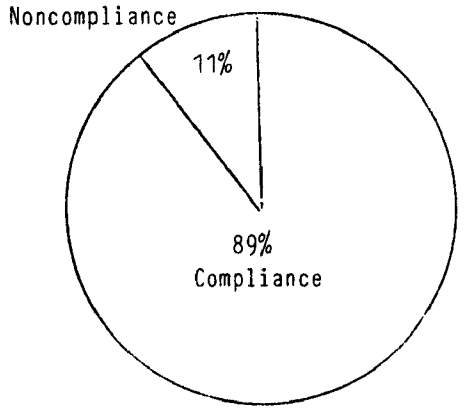
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	74*	27**	75**	Total Permits in Effect in 1982 Approx. 1225
Facilities Meeting 1982 Permit Requirements+	19	27	75	
Percentage of Facilities for Which Requirements Being Met	26	100	100	
Percentage of Flow for Which Requirements Met+	25	100	100	

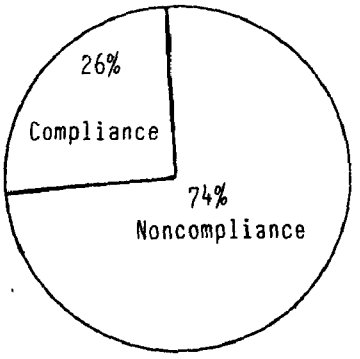
+Includes "No-Discharge" Facilities

*46 of 120 significant dischagers in 1972 did not have permits.

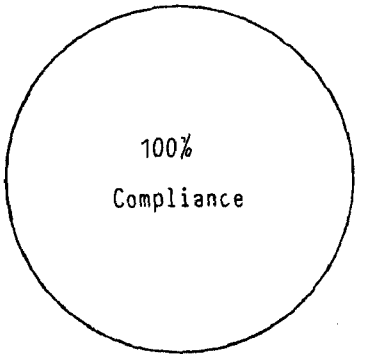
**Total does not equal 120 (1972 baseline) due to plant closures.

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Agricultural runoff was identified as a major potential problem through the Statewide 208 planning program because of its wide geographical extent. The Alabama Soil and Water Conservation Committee was involved in development of a nonregulatory program stressing education of the agricultural community and implementation of best management practices (BMPs) to control runoff. The ADEM, the Alabama Cooperative Extension Service, the Agricultural Experiment Station of Auburn University, and the USDA Soil Conservation Service continue to work cooperatively in the control of animal waste runoff from confined feeding operations. Application of BMPs is underway in the watershed of Lake Tholocco, a recreational lake near Ozark chosen as one of thirteen Rural Clean Water Program projects nationwide.

Runoff from silvicultural activities was determined to be a minor problem through the Statewide 208 planning program, and the nonregulatory program developed by the Alabama Forest Commission emphasizes education of forestry operators and landowners, and implementation of BMPs to control runoff. Urban stormwater runoff and construction runoff, evaluated as a part of the three areawide 208 planning programs in the State, were found to be a major potential problem in major metropolitan areas. Control of these sources is largely a local responsibility.

The NPS categories of residual waste and mining are addressed by regulatory programs which have been in place for some time. The ADEM has responsibility for control of residual wastes, and the ADEM and the Alabama Surface Mining Commission share responsibility in the area of mining through a Memorandum of Agreement. The impacts of hydrologic modifications and saltwater intrusion have not been thoroughly evaluated, but are thought to be minor. No control programs for these NPS categories are currently in effect.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	I/W	I/L	M/L	I/L	M/L	I/L	I/L
Primary Pollutants	OxDe SS	SS Nut.	SS	SS pH	SS	0 (D.O.)	Sal.	OxDe M

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Alabama Department of Environmental Management utilizes all reasonable means to obtain compliance including technical assistance, notices of violation, conferences, administrative orders and judicial actions.

In 1982, 13 administrative orders were issued to industries which were not in compliance with permits or did not have permits. Seventy-one (71) administrative orders were issued to municipal facilities for the same period.

In 1972, 30 administrative orders were issued to industries; 4 administrative orders were issued to municipalities.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

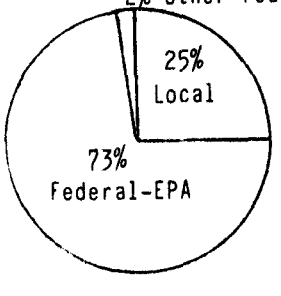
Total Number of Facilities:	9
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	2
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 349 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 256 Million
Other Federal:	$ 6
State:	$ 0
Local Match:	$ 87
Other Local:	$

C. Program Activities

Construction Grants Program

Under the construction grants program, federal funds are allocated to Alabama municipalities for construction of needed wastewater treatment facilities. The program has undergone continuous change since the enactment of the Federal Water Pollution Control Act of 1972; the amount of funds allocated on a national basis has fluctuated from year to year, as has Alabama's share. For the period 1972-1981, the amount of funds available to Alabama averaged $33.9 million, and varied from a low of $7.2 million in fiscal year 1973 to a high of $57.8 million in fiscal year 1978.

State assumption of certain construction grants functions has improved program management and has helped in achieving the program objectives of proper planning, design, and construction of needed treatment facilities. To date, Alabama has assumed responsibility for 14 of 20 construction grants functions.

Water Quality Monitoring Program

In 1974, 53 water quality trend stations were established in an effort to measure existing water quality and to provide a framework for long-term water quality evaluation. The initial selection took into consideration the existing water quality network of other governmental agencies and industrial dischargers, known or suspected problem areas, clean water areas, and the ability to support any stations selected. The number of trend stations in 1982 was 57, including 27 stations which are a part of the U.S. EPA's National Core Network of Stations.

However, monitoring strategy is changing, with the emphasis shifting from periodic monitoring at fixed, long-term stations to intensive monitoring of selected streams. Intensive stream surveys are used to support activities of the construction grants program, the NPDES permit program, and the enforcement program.

NPDES Permit Program

On October 19, 1979, Alabama was granted permitting authority by the U.S. EPA under the National Pollutant Discharge Elimination System (NPDES). Attainment of NPDES authority was the climax of some six years of effort on the part of Alabama, and provided one stop permitting for all industrial, municipal, and other wastewater dischargers in the State. NPDES permits in effect in Alabama number approximately 1900, of which 80 are major municipal facilities and 113 are major non-municipal facilities.

Enforcement Program

The basic mechanisms utilized by the State in insuring compliance with permits, state standards, and other legal requirements are through the issuance of administrative orders and by the institution of court suits for civil or criminal penalties or injunctive relief. Alabama's general approach has been one of graduated response, beginning with the issuance of warning or cautionary letters to alleged violators and proceeding to the issuance of an appropriate order including an order to "cease and desist" discharging pollution into waters of the state for continued noncompliance or for more serious permit violations. The state's ultimate enforcement tool is the institution of court action to insure compliance and to obtain civil and/or criminal penalties for past violations.

VI. SITE-SPECIFIC SUCCESSES

Birmingham Area

Several small tributaries of the Black Warrior River drain much of the Birmingham Metropolitan Area, including the heavily industrialized western and northern areas. In 1972, three streams in particular - Valley Creek, Village Creek, and Five Mile Creek - were severely impacted by inadequately treated municipal and industrial wastewaters and were considered the three "most polluted" streams in the state. Each stream received the discharge from a large municipal treatment facility which provided only primary treatment and which was subject to frequent bypass of raw wastewater in wet weather, and the discharges from numerous industries. Water quality surveys conducted in 1972 revealed grossly polluted conditions - dissolved oxygen levels approaching 0.0 mg/l, and five-day BOD and ammonia levels approaching or exceeding 20 mg/l. In addition, frequent fish kills were reported in the lower sections of the streams and in the Locust Fork of the Black Warrior River downstream of Five Mile Creek and Village Creek.

By the late 1970's, new or upgraded municipal treatment facilities had been completed, and virtually all the industrial dischargers to the three streams were achieving or exceeding best practicable treatment. Water quality data collected in 1982 show significant improvement over the data collected in 1972. This improvement is reflected in the absence of chronic fish kill events associated with industrial and/or municipal discharges, and in the presence of species of fish which had heretofore been absent.

Mobile Area

The City of Mobile, Alabama, is located at the upper end of Mobile Bay along the western shore. Most of the streams draining the Mobile area are small; all are tributary to either Mobile Bay or the Mobile River and are therefore influenced by tidal action over some portion of their length. These streams, as well as certain other deadend channels and inlets, exhibit poor flushing characteristics as a result of the tidal action.

In the early 1970's, numerous fish kills were reported each year in the Mobile area, with most occurring in Garrows Bend, a deadend inlet created by construction of the McDuffie Island Causeway and affected by inadequately treated industrial wastes, and in the Eslava Creek/Dog River/Halls Mill Creek area, a small embayment receiving wastewater from two municipal treatment facilities. The majority of kills involved menhaden and were the result of low dissolved oxygen levels.

Corrective action in the case of Garrows Bend consisted of connection of a major industrial facility to the Mobile sewer system, with treatment provided at the McDuffie Island Wastewater Treatment Plant. For the Dog River embayment, the solution also involved removal of the wastewters from the affected area; in this case through the installation of pumping facilities to transport the wastewaters from the existing treatment facilities to McDuffie Island. The success of the actions taken is most dramatically demonstrated by the noticeable absence of fish kills in the areas in recent years.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

A decade ago, in 1972, inadequate treatment of municipal and industrial point sources, and the resultant stream degradation, was the most serious water pollution control problem in Alabama. With passage of the Federal Water Pollution Control Act of 1972 (PL 92-500), a framework for corrective action was established. In addition to providing increased amounts of Federal funds for municipal construction at increased matching ratios (75% versus 55%), PL 92-500 established Federal standards for treatment by industries and municipalities and dates for achievement.

By 1978, 90% of all major industries in Alabama met or exceeded the applicable Federal treatment levels, and by 1982, this figure approached 100%. Significant improvements have also been made with respect to municipal treatment in the past decade; however, a large number of municipalities are awaiting funding for construction of new or upgraded treatment facilities to correct identified problems. Ths situation has existed since the mid-1970's, but has grown more crucial in the last several years as Federal funding has steadily decreased (from $57.8 million in fiscal year 1978 to $30.3 million in fiscal year 1982). With estimated construction needs of over $300 million, water pollution problems associated with publicly owned treatment works remain a concern in 1982.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
X sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

As identified above, surface water quality maintenance; groundwater resource quality protection; identification and control of toxic pollutants from industrial sources; and municipal wastewater plant operation and maintenance are issues of concern in Alabama.

Maintenance of surface water quality in light of population and industrial growth is tied closely to resolution of the funding problem associated with construction of municipal facilities, a problem which will receive increased attention in the years ahead. Protection of groundwater quality is a fairly new program effort in Alabama, and is being addressed through the Underground Injection Control (UIC) Program. Resources devoted to the UIC program, the groundwater protection in general, are projected to increase in coming years.

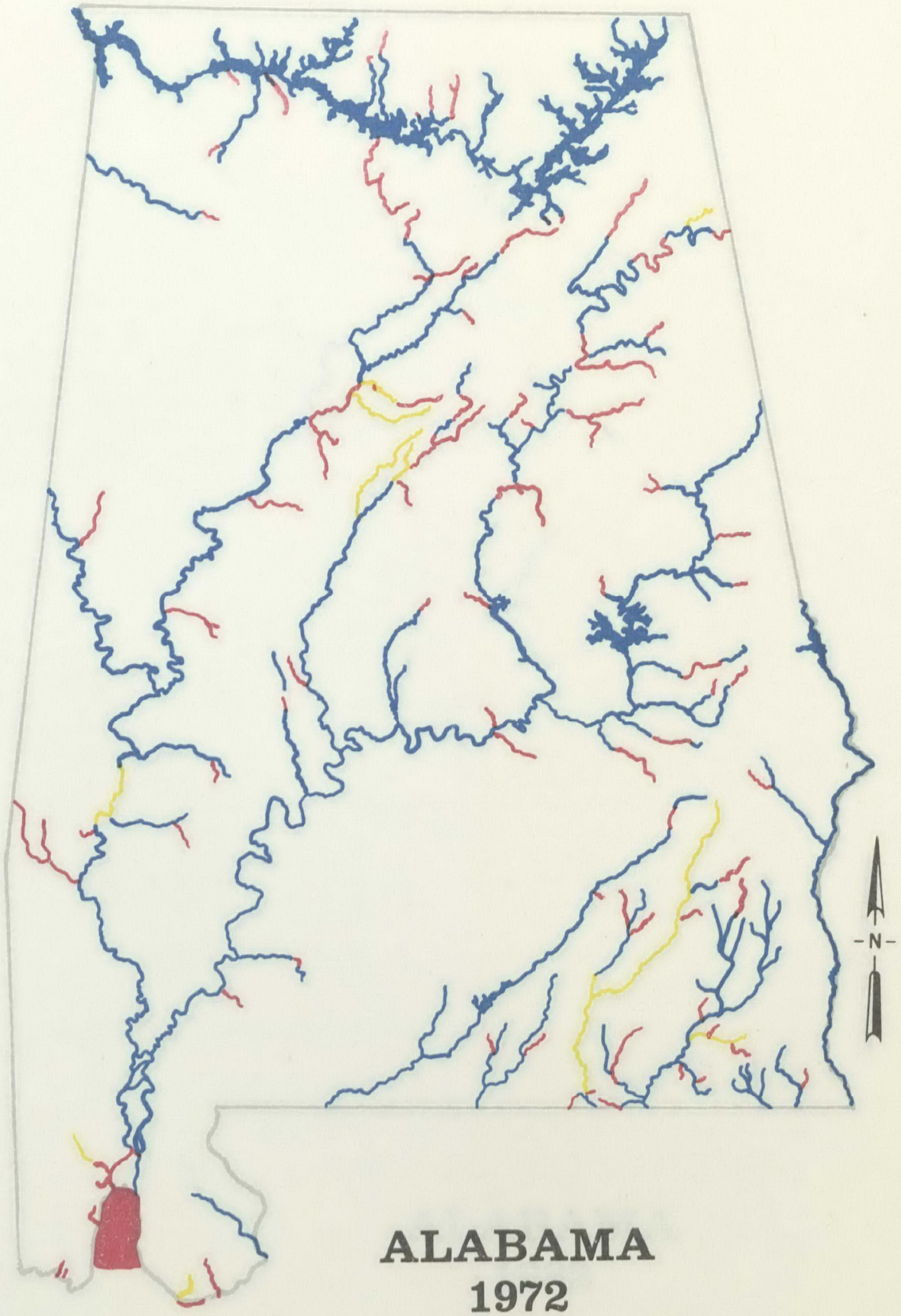
Identification and control of toxic pollutants from industrial sources is a relatively new area of concern in Alabama. Biomonitoring requirements are now being included in certain industrial permits, and the State is evaluating its capabilities in the area of biomonitoring. Proper operation and maintenance of municipal wastewater plants has long been stressed in Alabama, and emphasis in this area through the Wastewater Plant Operator Training Program will continue in the years ahead.

AGENCY PREPARING REPORT: Alabama Department of Environmental Management

State Capitol, Montgomery, AL 36130

CONTACT PERSON & PHONE #: James W. Warr (205) 277-3630

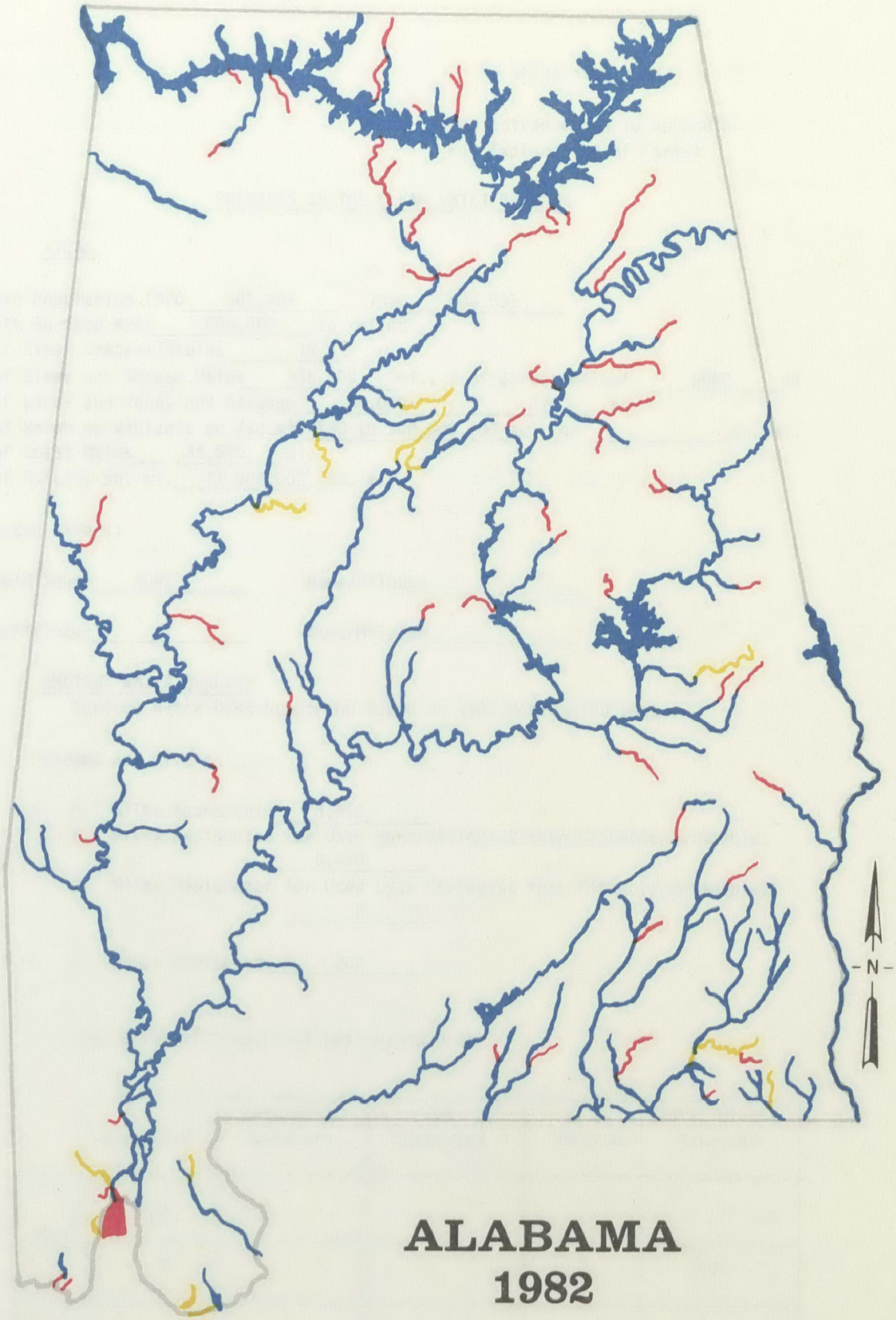
DATE: September 27, 1983



ALABAMA
1972

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported



ALABAMA
1982

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Alaska

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 300,382 1980 400,331
State Surface Area 586,000 sq. miles
# of River Systems/Basins 18
# of River and Stream Miles 365,000 mi.; # of Border Miles* NONE mi.
# of Lakes and Ponds and Acreage 300,000 / 720 ac.
# of Marsh or Wetlands ac./sq.mi. 130 to 300,000,000 ac. or _____ sq. mi.
# of Coast Miles 33,940 mi.
# of Estuary sq. mi. 11,000,000 sq. mi.

*Border Rivers:

Name/Mileage NONE Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 3,470
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 3,470
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 262

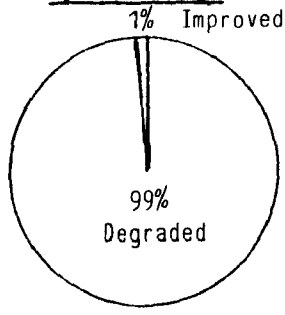
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
*1972	mi.				mi.
	%				100%
1982	8 mi.	21	3,250*2		3,279 mi.
	1%	6%	93%		100%

*1 Department formed in 1971, no data available
*2 Streams mainly affected by placer mining activity

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	0	8
Miles Degraded:	0	3,454
Miles Maintained:	0	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 6,814

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 6,814

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Acres Monitored: 3,323

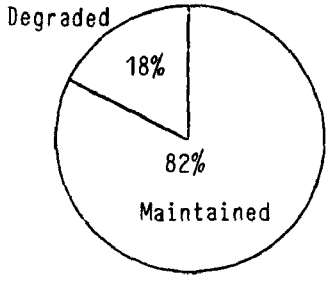
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
*1972	ac.				ac.
	%				100%
1982	5,561 ac.		1,253		6,814 ac.
	82%		18%		100%

*Department formed in 1971, no data available

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	0	1,253
Acres Maintained:	5,561	
Unknown:	0	

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	32.251	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	32.251	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	/
	d. Sq. Mi./Miles Monitored:	12.251	/

2. Evaluation of Support of Designated Uses

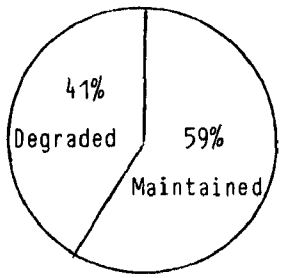
	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
*1972					
	%				100%
1982	19.0		13.25		32.25
	59%		41%		100%

*Department formed in 1971, data not available

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

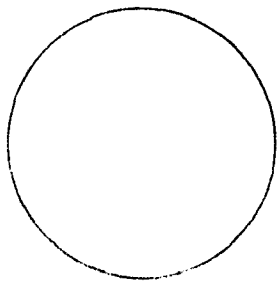
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	0	0
Sq.Mi.Degraded:	0	13.25
Sq.Mi.Maintained:	19.0	
Unknown:	0	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

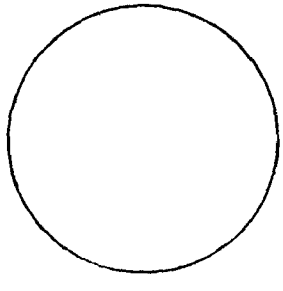
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

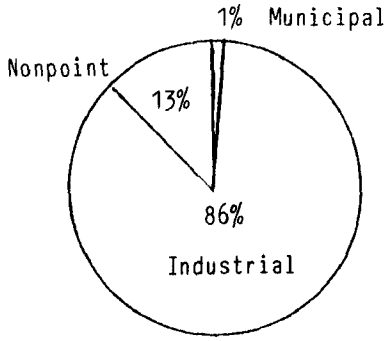


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

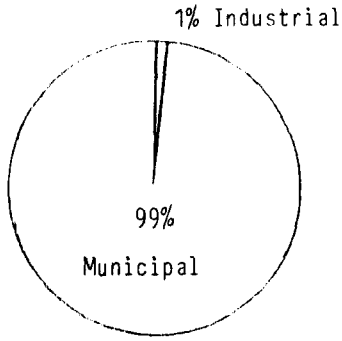
Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

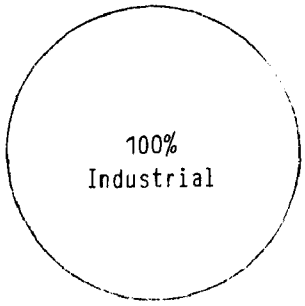
a. Streams and Rivers



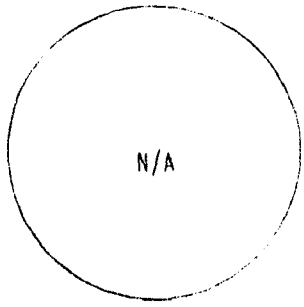
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X								
Industrial		X					X	*	*, Tb.
Non-Point					X		X	*	Tm, Tb.
Other (inc. natural)									

*Settled Solids, Sediments, Sludges

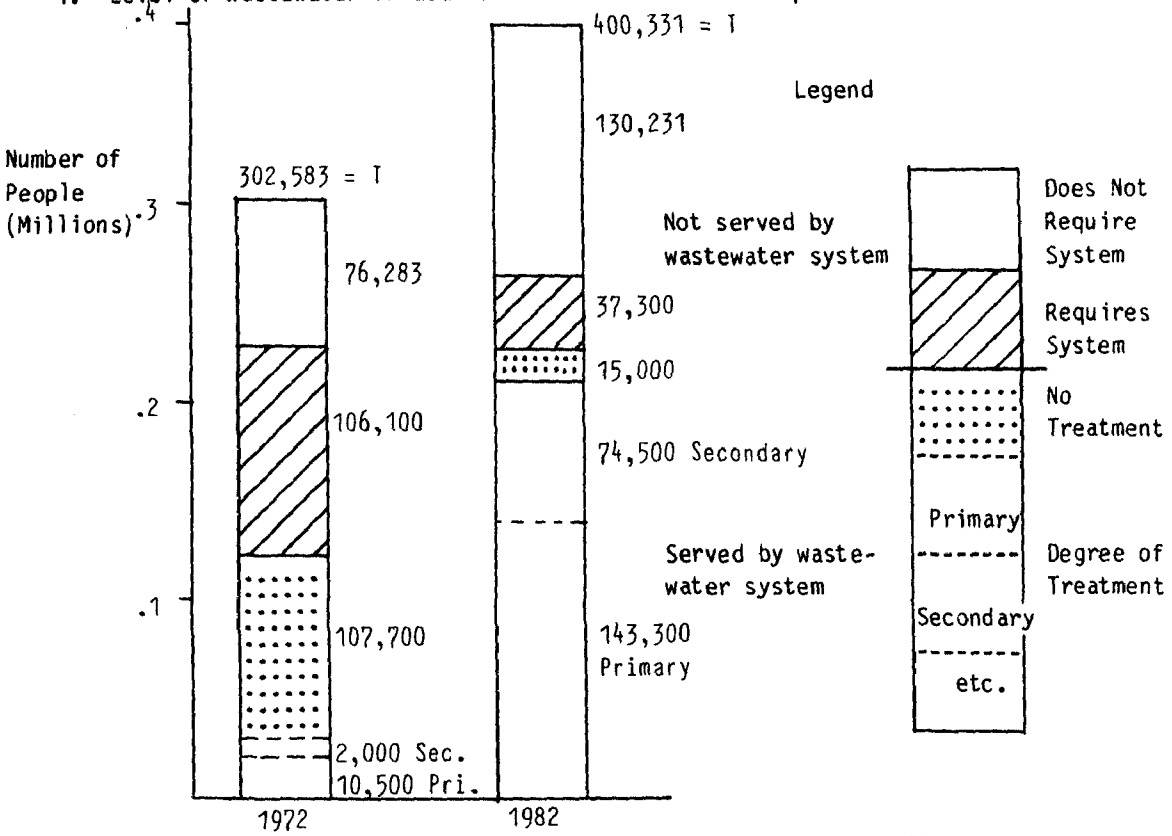
*Number of Stream/River Miles Affected by Toxics: None
*Number of Lake/Reservoir Acres Affected by Toxics: None
*Number of Estuary Square Miles Affected by Toxics: None
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

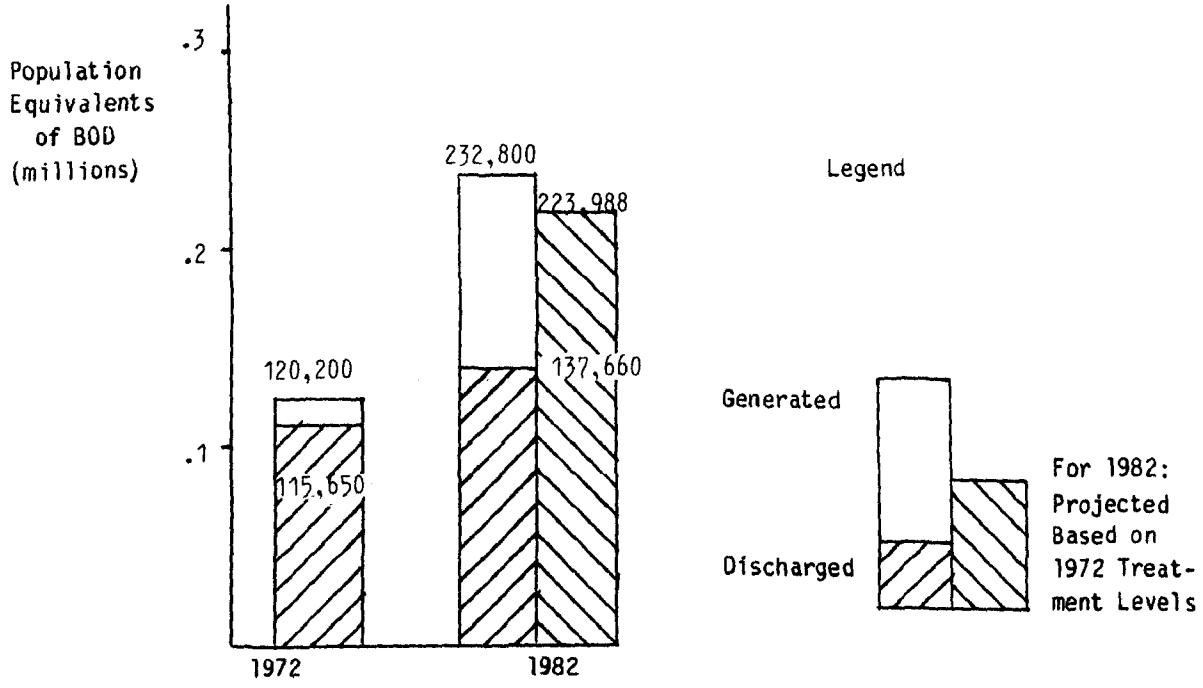
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

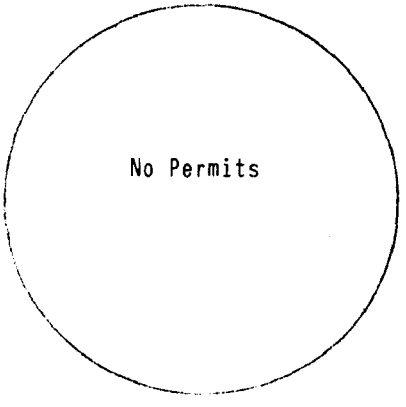
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	None		22	
Facilities Meeting 1982 Permit Requirements+			19	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met			86	45
Percentage of Flow For Which Requirements Met+			86	
Facilities Needing Upgrading			12	

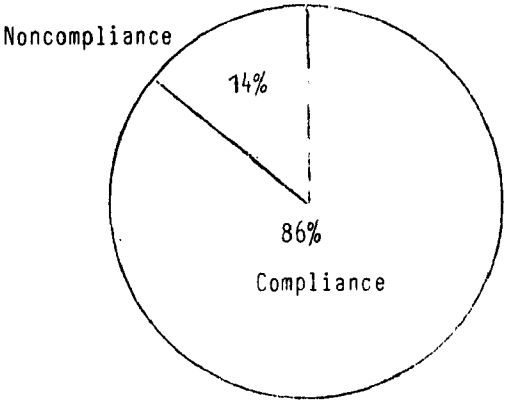
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

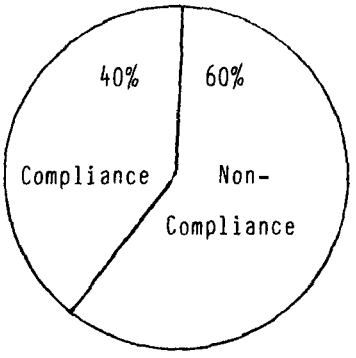
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	5		546	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	2		60	915
Percentage of Facilities for Which Requirements Being Met	40%		11%	
Percentage of Flow for Which Requirements Met+	data not available		data not available	

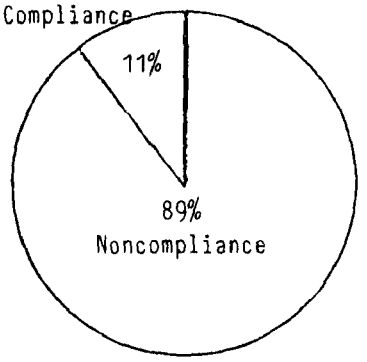
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Alaska ranks non-point source pollution as a much, much more serious problem than point source.

Placer Mining: Of all pollution problems in Alaska, placer mining is by far the most controversial, significant, and perplexing. Except in dry areas, the art of separating gold from and usually requires removal of water from a stream, with silt and water being returned to the same stream. Many affected streams are very small and remain muddy for miles. Murkiness of the water hinders growth of aquatic plants and limits sight-feeding fish from feeding--and being caught by fishermen. Residents of streamside villages claim silt from placer miners has caused declines in fish, waterfowl, and furbearing animals. Although point sources, placer miners are better described mobile operations and can oprate in many different locations in a few weeks leaving scarred earth, sedimentation ponds, and piles of tailings. With 400-600 operators now active, they would also be grouped into the non-point category.

Streamside Development: Spawing salmon seem to prefer streams in areas that have the same attributes people themselves look for when establishing homes: flat areas with low gradient, clean water, plenty of trees for streamside shade and protection without environment stresses like high winds. There are few areas in Coastal Alaska that have been inhabitated by people without adversely affecting streamside habitat. To give a few examples in Juneau:

Gold Creek - 1. Silt from placer mining in early 1900's
2. Stream bank destroyed, realigned, now a concrete-lined chute (Gold Creek, originally known as Humpie Creek, at one time supported a healthy salmon run, now gone).

Duck Creek - 1. Streambank buffer vegetation damaged and altered
2. Sewage disposal from trailer court sewage lagoon
3. Trash and litter dumping
4. Migration blocked by improper and clogged culverts

The Juneau list could continue. But the same type of list exists for Ketchikan, Wrangell, Petersburg, Sitka, Cordova, Valdez, Anchorage, and others. A localized intermediate problem, but one that receives considerable attention.

Intertidal and Wetland Dredge and Fill: Alaska's Wetlands, whether located on the coast or in the Interior, make up a large percentage of the State's lands and are some of its most productive. In productive wetlands, streams, or intertidal areas, dredge and fill activities destroy habitat that is valuable for the spawning or rearing of aquatic, waterfowl, and many non-aquatic organisms.

Timber: It would seem that salmon prefer to spawn in watersheds with the most valuable timber. Generally, these are flat areas, protected from winds, warm and exposed to what sunlight there is in Southeast and coastal Alaska.

1. Log Storage and Transfer - Areas beneath log raft sites usually contain a buildup of sunken logs and bark which smothers marine life. These wood wastes then decay and release toxic material. There are nearly 150 existing log raft storage sites in Southeast Alaska.
2. Road Construction - Erosion and mudslides from poorly constructed roads add sediment and silt to fish spawning streams, and sometimes ruin them.
3. Slash Disposal and Timber Felling - If dumped into or felled across streams, trees and trimmed branches and limbs clog these streams, again blocking fish passage.
4. Erosion - Certain log skidding or dragging practices seriously aggravate erosion and runoff of sediment and silt from timber harvesting areas.
5. Temperature and Dissolved Oxygen Effects - Absence of shade from streamside trees raises stream temperature which, certain Southeastern Alaska watersheds, may be lethal to cold-water fish such as salmon and trout.

On-lot Sewage Failures: Subdivisions without a sewage collection system usually use individual septic tank and drainfields. Several of these areas have soil conditions totally unsuitable for on-lot systems. Either no soil exists (as in parts of Ketchikan which sits on bedrock) or soil grain size is too small to treat sewage (as in the clays of Homer). Subdivisions can be found in Alaska wherein small drainages, streams, and roadside gutters reek of sewage and are contaminated with sewage bacteria. This is the only significant water pollution control problem we have identified as a Health Concern; it is therefore very important.

Other: There are considerations that do not fit into point or non-point categories. One careless bulldozer operator can, in 15 minutes, completely and irrevocably injure or destory a top-quality, very productive salmon spawning stream. One careless chainsaw operator can do the same damage in half that time. An improperly constructed culvert can act as barrier impassable to fish and render extensive upstream areas unfit for rearing or spawning. On the other hand, fish kills in Alaska from sewage are unheard of.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/W	N/A	S/W	S/W	M/W	I/L	M/L	I/L
Primary Pollutants	SS	N/A	SS	SS	SS	O	S	OD

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

See Activities

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	N/A*
Number of Pre-Administrative Actions:	
Number of Administrative Actions:	
Number of Judicial Actions:	

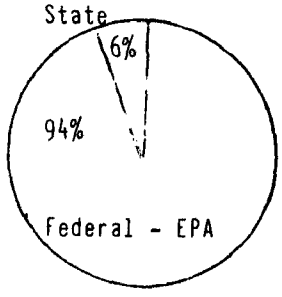
*NPDES Program not delegated to State of Alaska

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 183.5 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 172.2 Million
Other Federal:	$ --
State:	$ 11.3
Local Match:	$ --
Other Local:	$ --

C. Program Activities

The Water Pollution Control (WPC) program for the Alaska Department of Environmental Conservation breaks down activities into various organizational groups:

Group (Man Years)	Typical Activities
Central Office (6.5)	Revise Standards, Regulations Conduct Reclassification Hearings Administer Grants for Programs Coordinate Intra-Department Activities Administer Contracts for Research, Projects
Regional Office (21.5)	Review Subdivision Plans Review Plans for Non-Public Treatment Works Inspect and Approve On-Site Sewage Systems Inspect Logging Operations Issue Disposal Permits and 401 Certifications Investigate and Enforce Water Pollution Incident Inspect Placer Mining Operations Inspect Seafood Processing Plants
Construction Grants (13)	Review Plans for Grant Eligible Treatment Works Administer Grants for Construction Certify Operators for Treatment Works
Monitoring/Lab (4.0)	Monitor Placer Mining Streams Monitor Surface Coal Mining Watersheds Assess Agricultural Impacts Monitor Sewage Treatment Discharge Zones
Miscellaneous (1.5)	Public Information -- Brochures, News Program Management

Total (46.5 Man Years)

The DEC WPC activities are directed toward water quality standards rather than toward permit compliance. For this reason, Alaska has found it inappropriate to adopt the NPDES program. Approximately 750 certificates of reasonable assurance are issued annually, the bulk of which are for intertidal and wetland activities.

The WPC program invovles about 20% of the Department's staff (220 people) and budget ($9,800,000).

VI. SITE-SPECIFIC SUCCESSES

Juneau's Mendenhall Valley: A flat, spruce forest, with salmon spawning streams, exposed by a receeding glacier. The subsurface soils contain cobbles, sand, and silt. In 1972, the valley had been experiencing explosive residential growth. Trailer courts sprang up, sewage from which collected in "lagoons" (actually mined out gravel pits) and overflowed into fish streams. Flooded drainfields leaked septic sewage into roadside ditches and backyards. Shallow unprotected drinking water wells, often no deeper than twenty feet, were contaminated by poliferating septic tank systems.

The health hazards were so desperate that the Department of Environmental Conservation announced that no loan approvals would be granted for on-site sewage disposal, halting house construction at the peak of the frantic building season.

Crash programs for sewage collection and treatment resulted in removal of health hazards and resumption of (ab)normal growth. In 1982, the treatment plant has already expanded once and needs more capacity yet. It bears emphasis that the "success" is not clearing up a river but removing untreated sewage from residential areas and from areas near drinking water wells.

Fairbank's Chena River: In the early 1970's municipal wastes were discharged into the Chena River from about 25,000 people in Fairbanks. These wastes received primary waste treatment from several outdated facilities.

In 1970, coliform counts taken in the Chena River range anywhere from 37,000 to 500,000 coliform organisms per 100 ml, violating Alaska's water quality standards. Reacting to pollution, sportsman angling for grayling and whitefish had to go upstream of Fairbanks where the river's cold, near-arctic waters were cleaner.

In 1982, a 100-mile-long interceptor sewer system encircles Fairbanks. Along the way, its trunk lines receive the wastes from the city, most of its outlying suburbs wastes are carried to the regional plant for secondary treatment.

A bacteriological survey of the Chena found that the coliform count was down to 70 coliform organisms per 100 ml, a resounding tribute to the combined local, state, and federal cleanup actions which have saved the Chena River.

Anglers in and around Fairbanks have returned to these waters to catch grayling -- a gourmet delight and a prince of a sportfish -- and whitefish, a species which is valued for its tasty white meat. Since cleanup, boat landings and a picnic camping ground have appeared along the Chena, attracting boaters, canoers, and nature lovers.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

What the structure of this report has failed to accommodate is the vastness and adolescence of Alaska.

In 1972, Alaska has been a state for 14 years. It was the first weeks of the existence of a pollution control department staffed by about thirty-five people. There was not one single significant efficiently operating sewage treatment plant, primary or secondary. A few cities were lucky enough to have sewers to get sewage out of their yards, soils in Alaska being generally unfit for on-site septic systems. Needless to add, in 1972 the luxury of information about monitoring streams and lakes was undreamed of. Even in 1982, with over-ruled oil wealth it is still a luxury.

In the report format, extents of problems and monitoring are difficult to assess in terms of "percents." There are three million lakes which are greater than 20 acres in size. Given our present water pollution staff, that's 71,400+ lakes for each one of us. We could handly assess, monitor, or do much with a percent of them. The four pages of Section II have limited value to describe our water quality problems. Likewise in the table in Section IV, by far the most significant 1 3/8" of the structured part of the report for Alaska, extent of "W" (defined as more than 50% of state water's affected) is meaningless, even though some of our "L" (localized) areas might be larger than some Eastern states.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of populaton and industrial growth.
- Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point sources.
- Municipal wastewater plant operation, maintenance, and rehabilitation.
- Pollution arising from abandoned industrial and/or mining facilities.

Overwhelming - pollution arising from unforeseen or unpredictable natural resource development (coal, metals, oil, etc.)

In Alaska's situation, progress in pollution/water quality is not so much related to permit compliance as to fluctuations in prices of resources. In the example of placer mining, if, in 1982, Herculean efforts in enforcement resulted in 100% compliance with permit conditions, river miles in violation of water quality standards might drop from 3000 to 1000. If on the other hand, the price of gold dropped 50%, river miles in violation might drop from 3000 to 100 without any compliance. If the price doubled, there would be a Normandy scale invasion. In 1972, there was no active placer miners. The same could be said for the timber harvesting and processing industries. Comparing to the scale of these activities, whether or not sewage is treated is like listening for flatulence in a hurricane. With these factors in mind, "Progress in the Clean Water Program" for Alaska can not be fairly measured in terms of numbers in boxes or slices in pie charts.

* Our field people have been issued bullet-proof vests and been accompanied by Alaska State Troopers.

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CONTACT PERSON & PHONE #: Rudy Bayliss (907) 465-2653
DATE: August 2, 1983

State of Arizona*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 1,775,399 1980 2,717,866
State Surface Area 113,909 sq. miles
# of River Systems/Basins 9
# of River and Stream Miles 6,287 mi.; # of Border Miles* 417 mi.
# of Lakes and Ponds and Acreage 115 / 364,070 ac.
# of Marsh or Wetlands ac./sq.mi. 182,000 ac. or _____ sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Colorado R. 417 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 497
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 840
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 120
   d. Miles Monitored: 270

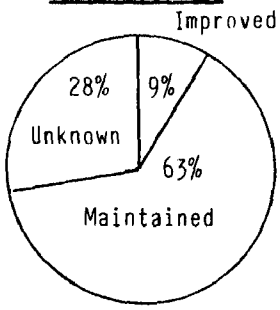
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	150 mi.	50	157	140	*497 mi.
	30 %	10	32	28	100%
1982	317 mi.	40	140	0	497 mi.
	64 %	8	28	0	100%

*1982

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	35	7
Miles Degraded:	0	0
Miles Maintained:	315	
Unknown:	140	

B. Lakes and Reservoirs

1. a. Acres Assessed: 72,400

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 26,000

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: -0-

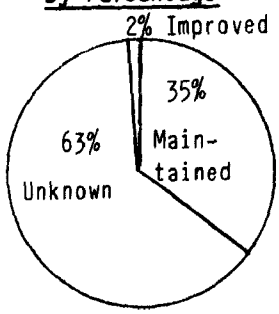
d. Acres Monitored: 28,000 (1982)

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	20,000 ac.	1,295	5,445	45,660	72,400 ac. (1982)
	28%	2%	8%	62%	100%
1982	65,710 ac.	1,615	5,075	0	72,400 ac.
	91 %	2%	7%	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

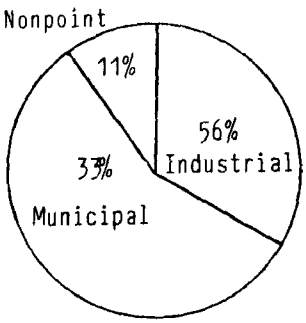


	Within Category	Change in Category
Acres Improved:	1,220	370
Acres Degraded:	0	0
Acres Maintained:	25,150	
Unknown:	45,660	

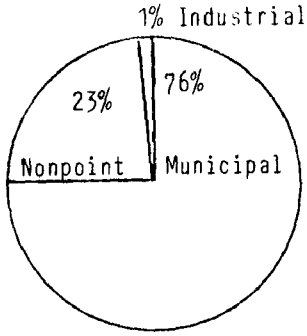
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

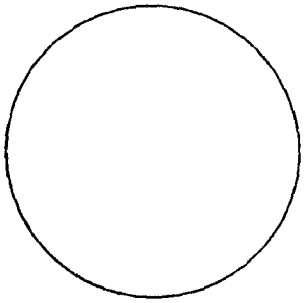
a. Streams and Rivers



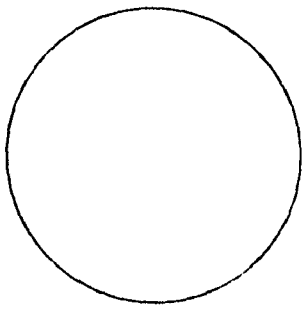
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X			X			X
Industrial				X		X	X		X
Non-Point	X		X	X		X			
Other (inc. natural)									

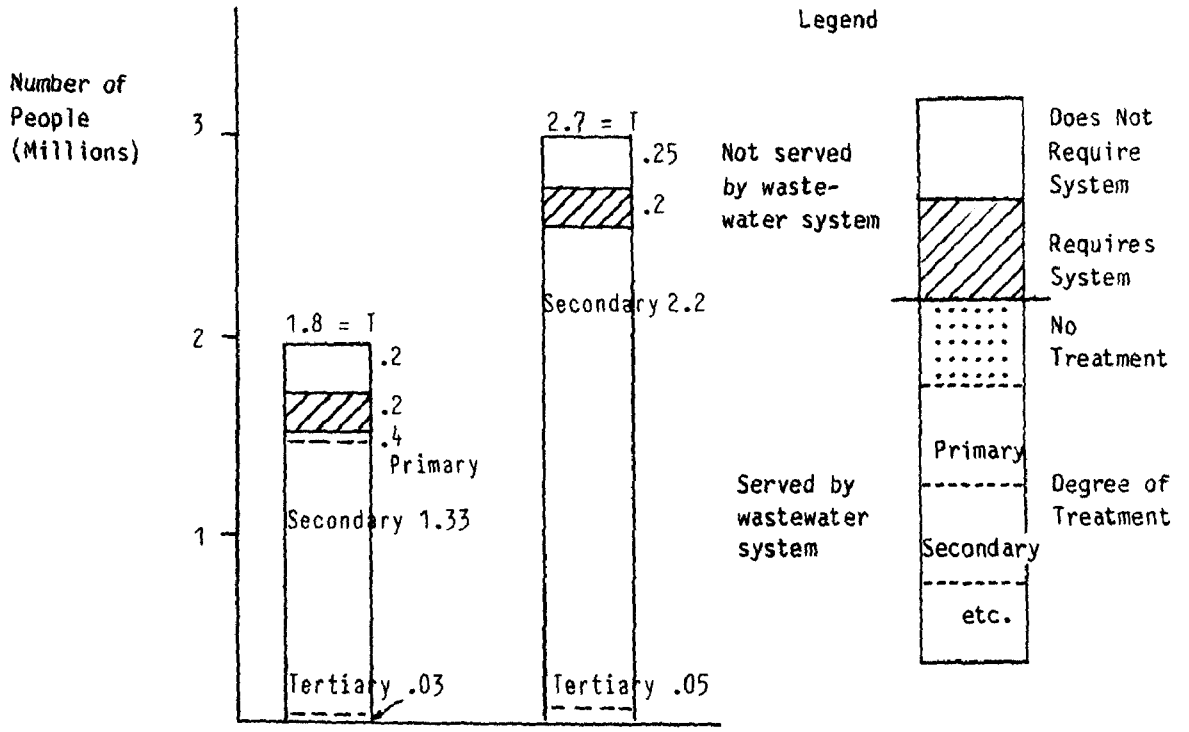
*Number of Stream/River Miles Affected by Toxics: 60
*Number of Lake/Reservoir Acres Affected by Toxics: 5,000
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

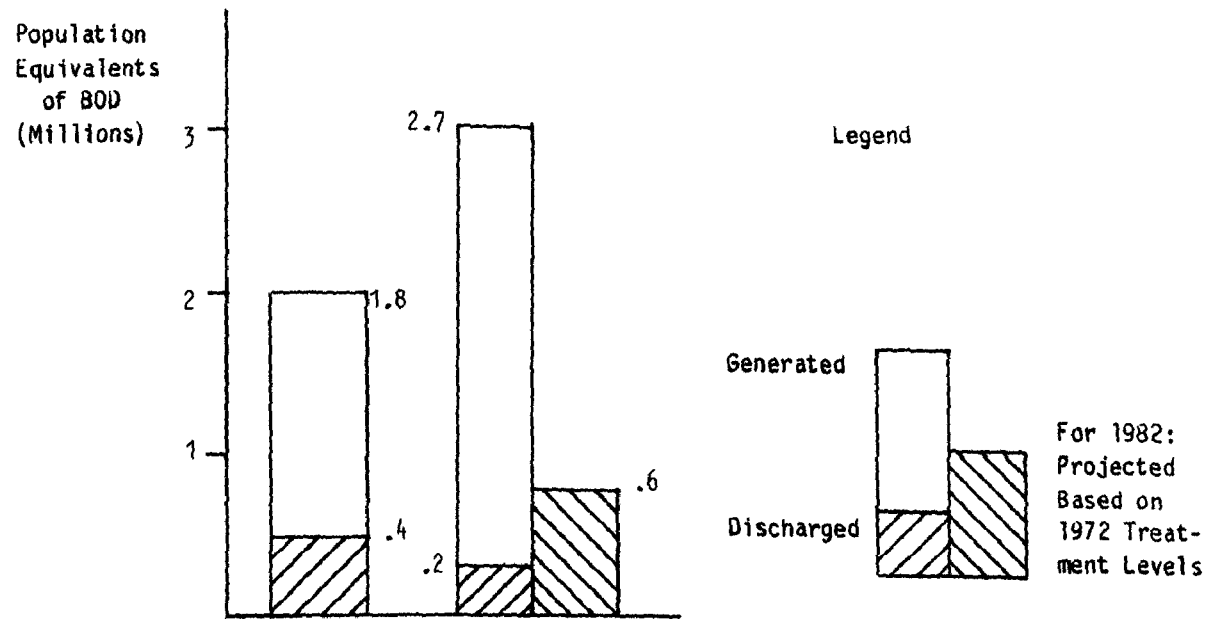
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

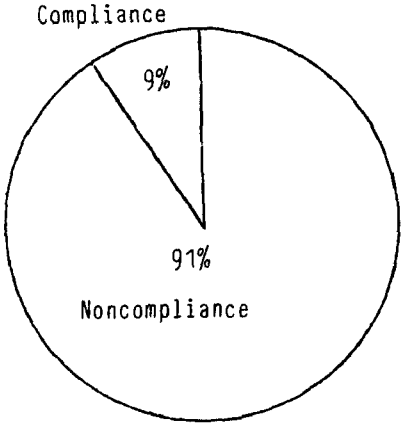
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0		11	
Facilities Meeting 1982 Permit Requirements+	1		7	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	9		64	54
Percentage of Flow For Which Requirements Met+	8		41	
Facilities Needing Upgrading	9		2	

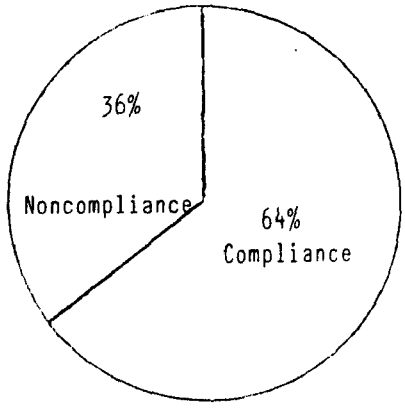
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

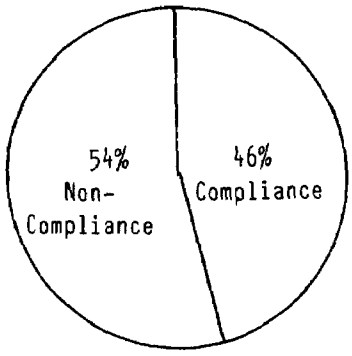
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	13		13	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	6		12	23
Percentage of Facilities for Which Requirements Being Met	46		92	
Percentage of Flow for Which Requirements Met+	11		99	

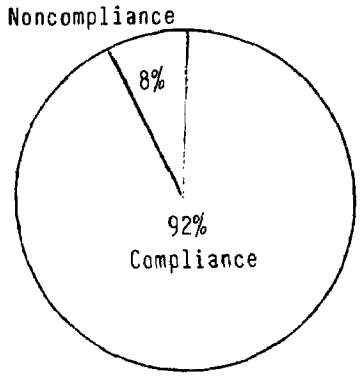
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Non-point sources of pollution dominate surface water quality for more than 5,500 miles (87%) of rivers and streams and more than 355,000 ac. (98%) of lakes and reservoirs. Less than full support of surface water uses is rarely associated with non-point sources. In relatively wet climatic zones, range runoff, on-site disposal systems and recreation are the predominant non-point sources to surface waters.

Mineral extraction residues, primarily tailings ponds and leaching operations are an important source of trace metals and sulfates to groundwater. More than 100,000 ac. have been impacted by present and historical mineral extraction operations. Groundwater underlying approximately 10,000 ac. of recreation land has been contaminated with bacteria by on-site and package plant disposal practices. Groundwater underlying approximately 20,000 ac. of urban-industrial land has been contaminated with industrial solvents such as TCE. Groundwater under approximately 10,000 ac. of agricultural land has been contaminated with DBCP.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I	M	I	S	I	I	N/A	M
Primary Pollutants	OxDe M,O	NP	T	M, pH	T	Sal		M & Toxics

* Other - Organic Chemicals (Toxics)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The State maintains monthly, quarterly and yearly reports which identify the compliance status of all wastewater treatment facilities. The reports are routinely updated and reviewed on a priority basis. Non-complying facilities are inspected by field personnel and/or are sent a series of letters asking for corrective action. This "presence" creates an environment for voluntary compliance in all but the most deliberate or difficult problems. Violations of water quality standards discovered in response to complaints, as the result of water quality field investigations, or from reviewing monitoring network data are confirmed, and dialogue is established with responsible entities to seek voluntary compliance. Formal enforcement procedures are used whenever voluntary compliance is not achieved.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

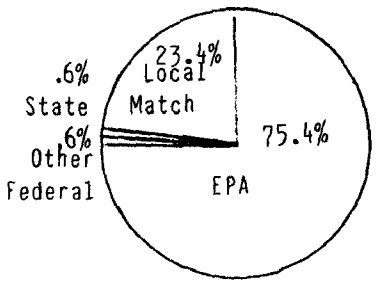
Total Number of Facilities:	5
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	1
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 277.5 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 209.3 Million
Other Federal:	$ 1.7
State:	$ 1.6
Local Match:	$ 64.9
Other Local:	$ N/A

C. Program Activities

Major components of Arizona's program are: groundwater quality protection, planning and public participation, permitting, monitoring, compliance and construction grants.

Arizona has recently initiated an extensive program to protect groundwater quality. Regulations are being developed with an emphasis on pollution prevention. A permit program is being proposed to protect beneficial uses of our groundwater supplies. Coordination with existing state laws and programs is a special consideration. It is essential that the new groundwater program be coordinated with programs administered by the Arizona Department of Water Resources, "Active Management Areas" and local designated water quality management programs. Efforts have also been made to coordinate groundwater quality management with the hazardous waste program as well as the State funded water quality assurance fund which is intended to help correct water quality problems in public drinking water supplies.

The State's ambient water quality monitoring program consists of a small fixed station network, intensive surveys, background surveys, enforcement surveys and a priority pollutant network. The fixed station network has been contracted with the U.S. Geological Survey. Intensive surveys have been done between 1973 and 1979, on suspected areas with groundwater and surface water pollution. Background surveys have been conducted to gather information for the 305(b) report.

A resource limited program is maintained to approve and monitor the design, construction, operation and maintenance of wastewater treatment facilities. At the current time, the State prepares National Pollutant Discharge Elimination System (NPDES) permits for issuance by the EPA. The State plans to receive primacy within the next year when State regulations have been adopted after resolving issues regarding statutory authority.

In 1979, the State received delegation of the construction grants program from EPA. Since that time, more emphasis has been placed on expanding treatment systems rather than interceptor and collection systems. The State's priority system used for the funding of projects has included criteria for environmental degradation and health hazards. These changes in the construction grants program are largely due to increased local competition for limited funds.

In 1982, the Department produced a Clean Lakes Report which summarizes the water quality conditions of lakes in the State. A priority list of water quality problems has been included which will be used by State agencies to fund future lake restoration programs.

Increased emphasis has been placed on implementation of activities recommended in the 208 program and clean lakes report.

VI. SITE-SPECIFIC SUCCESSES

City of Phoenix - In the mid-1970's the two Phoenix WWTP's were in serious disrepair and O & M was poor. Discharge permit limits were not being met. Morale was poor among plant operators. Administrative actions by the State and EPA improved the situation dramatically. Most O & M deficiencies have now been corrected. Equipment has been repaired and returned to service. There are now on-going preventative maintenance and operator training programs. Operator morale has iproved significantly. Both plants are meeting discharge limits for BOD, SsS, S+S, and FC with room to spare in spite of the fact that the 91st Avenut plant is currently 25 percent hydraulically overloaded. However, Phoenix is still in the process of addressing and correcting potential problems relative to the discharge of trace metals.

In 1982, a Phoenix operator won the Arizona Water and Pollution Control Association's wastewater operator-of-the-year award for her work in operator training. In 1983, another operator won this statewide award for his successful efforts in keeping the 91st Avenue plant running well despite the overload and the disruptions caused by an on-going 30 MGD expansion project.

Sabino Creek - Sabino Creek drains a small watershed on the slopes of Mount Lemmon near Tucson in the Santa Cruz River Basin. It is the only perennial stream within fifty miles of Tucson and has heavy recreational use. In 1977, the fecal coliform levels downstream from the community of Summerhaven exceeded State surface water quality standards. The wastewater treatment plant was found to be inadequate. The State Water Quality Control Council prohibited direct discharges to Sabino Creek. A new treatment facility has been constructed which exports the treated watewater outside of the Sabino Creek watershed.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

A dramatic growth in population has placed strong demands on Arizona's limited water resources. It has been a challenge to maintain water quality. The primary water quality issue has been protection of the State's groundwater resources. More than 50 percent of the State depends on groundwater for drinking water. For some cities like Tucson, this figure is 100 percent. A number of studies aimed at identifying complex sources of groundwater pollution and possible mitigation measures have been completed successfully. In addition, the State has been developing a formal groundwater quality control program and associated regulations.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
X sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
X - Pollution arising from abandoned industrial and/or mining facilities.

While the State's groundwater quality protection program is preventive rather than corrective in nature, there is evidence that most of the groundwater quality problems will be from existing or abandoned facilities. In the last four years, TCE, DCE, chromium, and DBCP have been found in groundwater supplies throughout the State. A key challenge in coming years will be how the State responds to groundwater contamination outbreaks with limited resources and technical staff. Even with a solid regulatory program base, adequacy of a State response to problems will depend on funding levels.

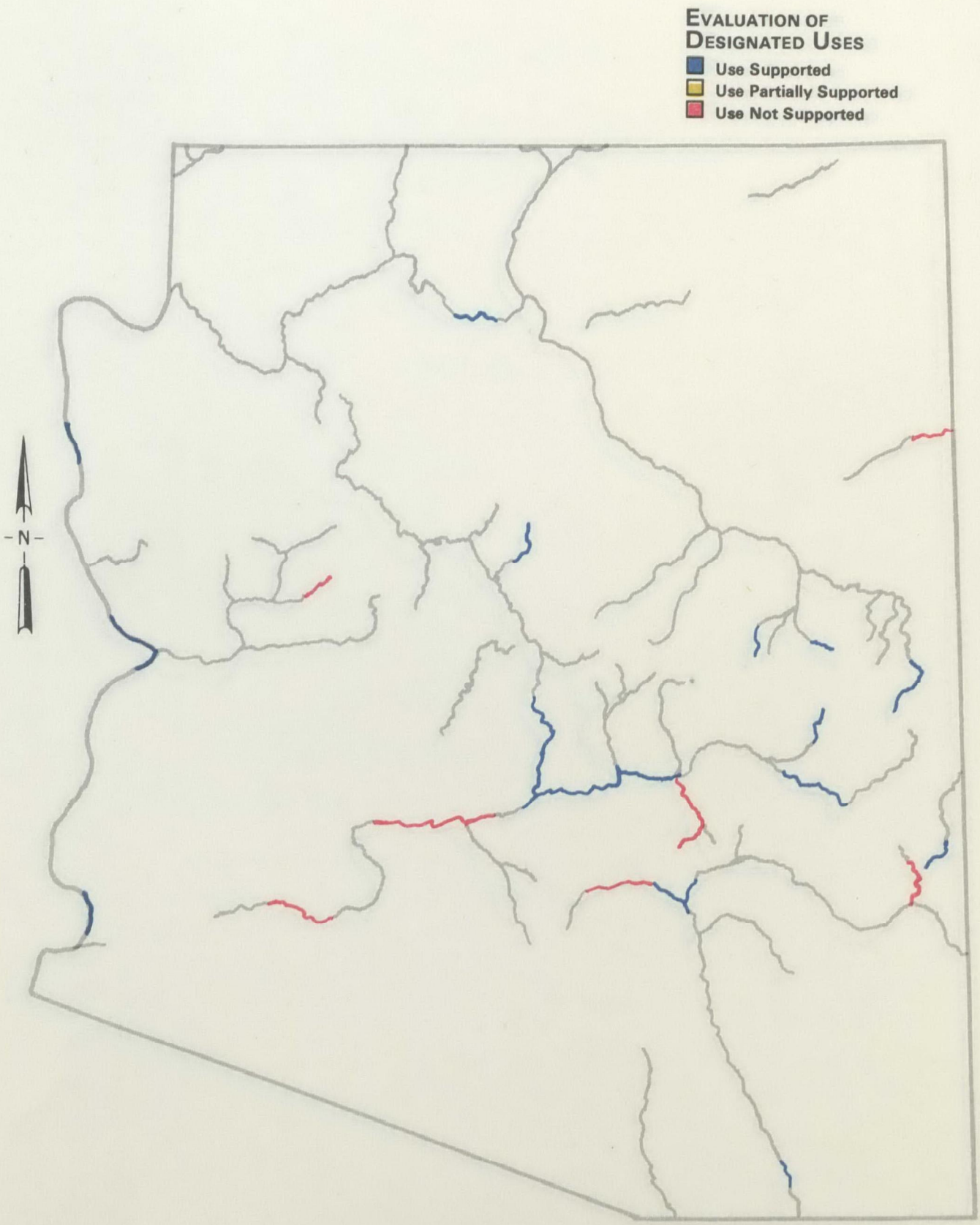
Rapid population gains place severe demands on the need for services. It is important that water quality programs be efficient and innovative. It is unlikely that there will be sufficient funding for conventional water pollution programs. Yet, the State cannot afford to maintain marginal programs. Federal and State programs must be sensitive to new ideas and have regulatory programs with sufficient flexibility to allow new methods without compromising the environment or public health.

AGENCY PREPARING REPORT: Arizona Department of Health Services
Division of Environmental Health Services
Bureau of Water Quality Control

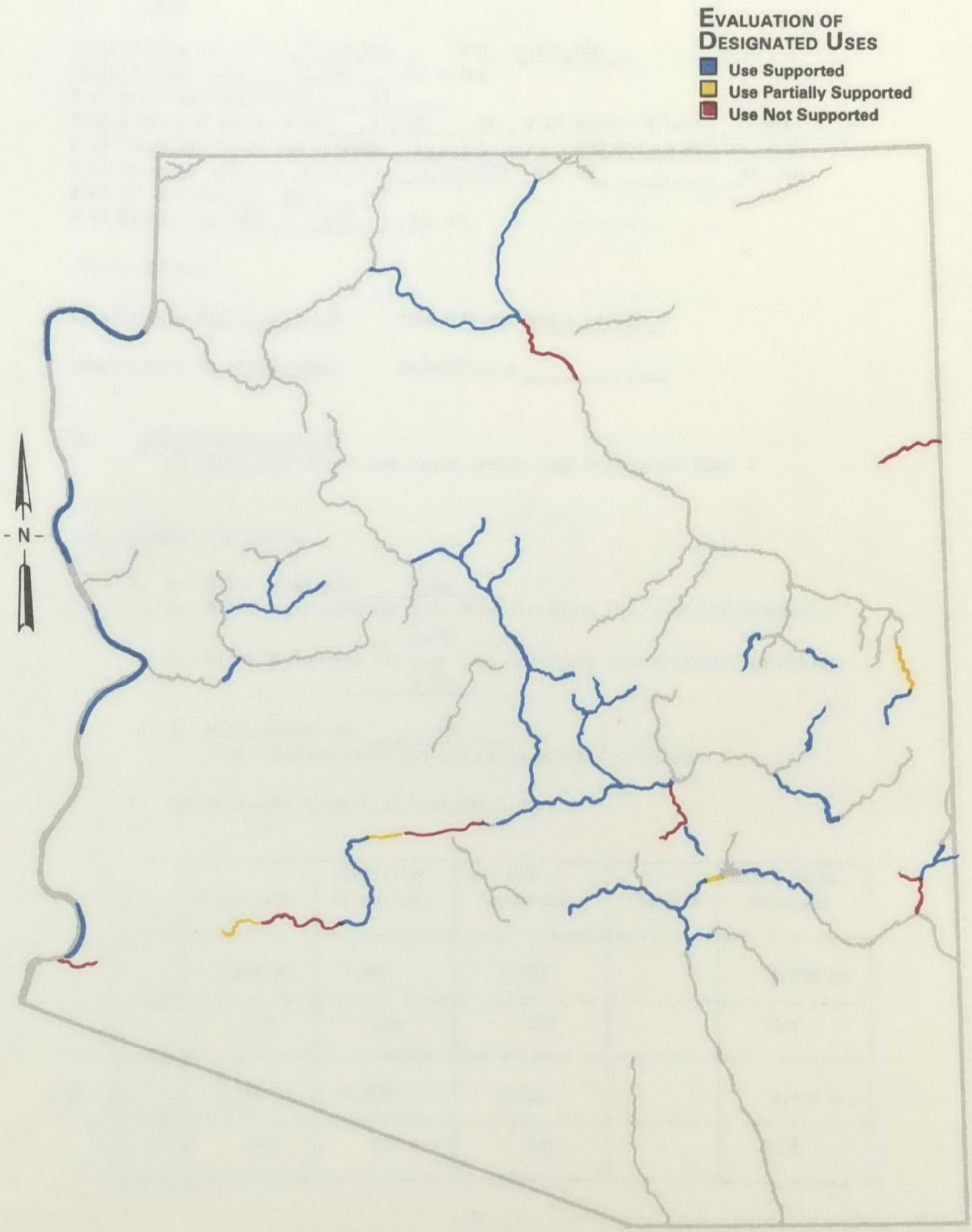
CONTACT PERSON & PHONE #: Wm. H. Shafer, Jr. (602) 255-1272

DATE: September 28, 1983

ARIZONA
1972



ARIZONA
1982



State of Arkansas*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 1,923,295 1980 2,285,000
State Surface Area 52,000 sq. miles
# of River Systems/Basins 39
# of River and Stream Miles 10,000 mi.; # of Border Miles* 409 mi.
# of Lakes and Ponds and Acreage ? / 600,000 ac.
# of Marsh or Wetlands ac./sq.mi. 1,608,000 ac. or _____ sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Mississippi/339 Name/Mileage Red River/30

Name/Mileage St. Francis/40 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

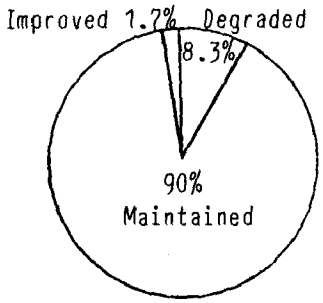
1. a. Miles Assessed: 6,000
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 2,000
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 4,000
   d. Miles Monitored: 0*
   *103 Stations exist but cannot be related to miles.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	3,000 mi.	1,800	1,200		6,000 mi.
	50%	30%	20%		100%
1982	3,000 mi.	1,300	1,700		6,000 mi.
	50%	22%	28%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	100	0
Miles Degraded:	500	0
Miles Maintained:	5,400	
Unknown:		

B. Lakes and Reservoirs

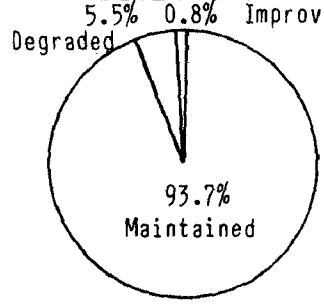
1. a. Acres Assessed: 600,000
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 584,000
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 16,000
   d. Acres Monitored: 0

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	600,000 ac.				600,000 ac.
	100%				100%
1982	567,000 ac.	33,000			600,000 ac.
	94.5%	5.5%			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

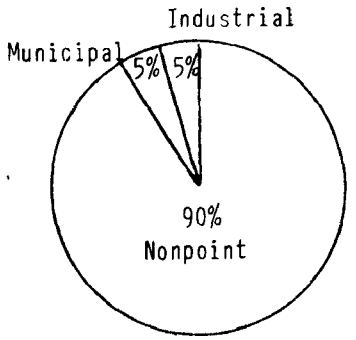


	Within Category	Change in Category
Acres Improved:	5,000	0
Acres Degraded:	33,000	0
Acres Maintained:	562,000	
Unknown:		

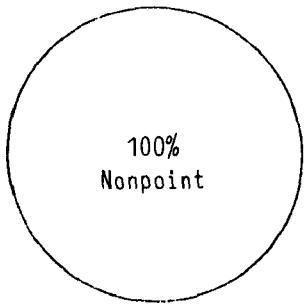
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

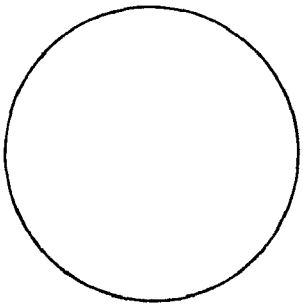
a. Streams and Rivers



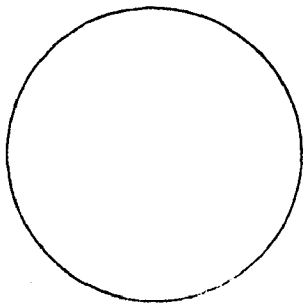
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						D.O.
Industrial	X	X				X		Color	DO, Toxics
Non-Point			X			X	X		Turb. Toxics
Other (inc. natural)									

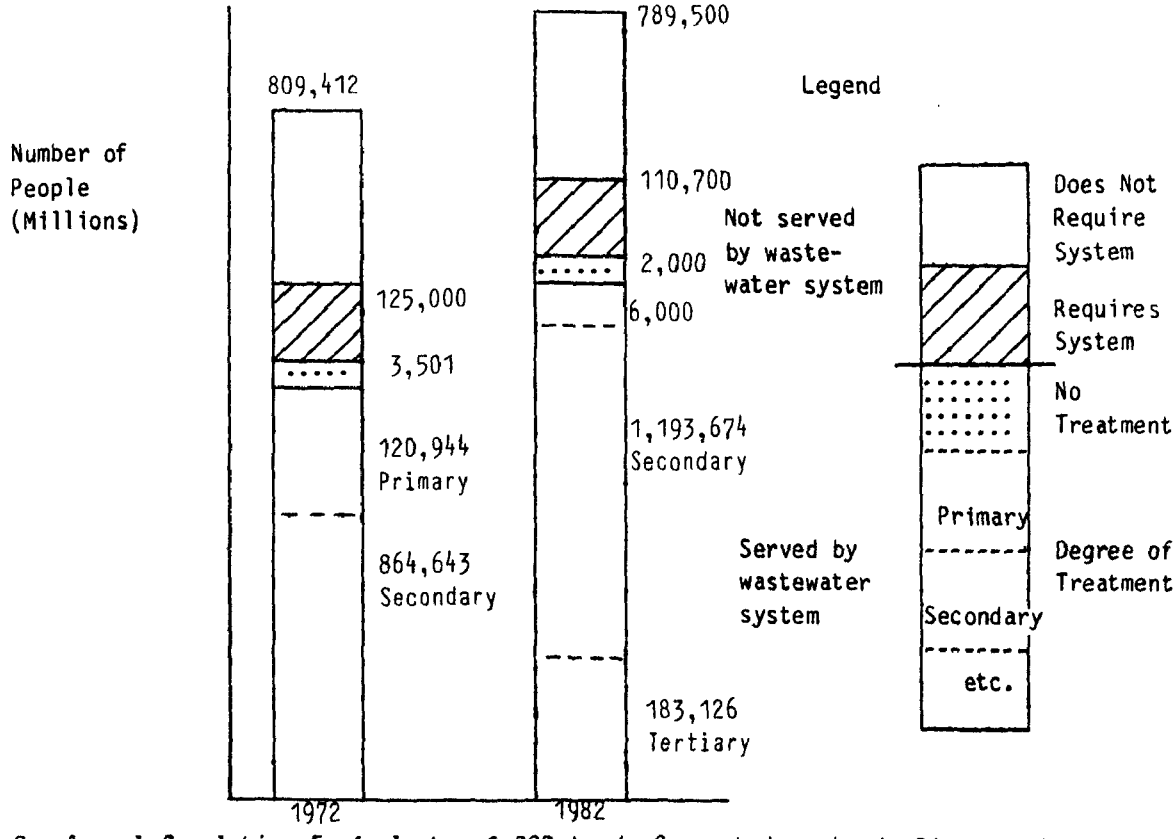
*Number of Stream/River Miles Affected by Toxics: 400
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 0
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

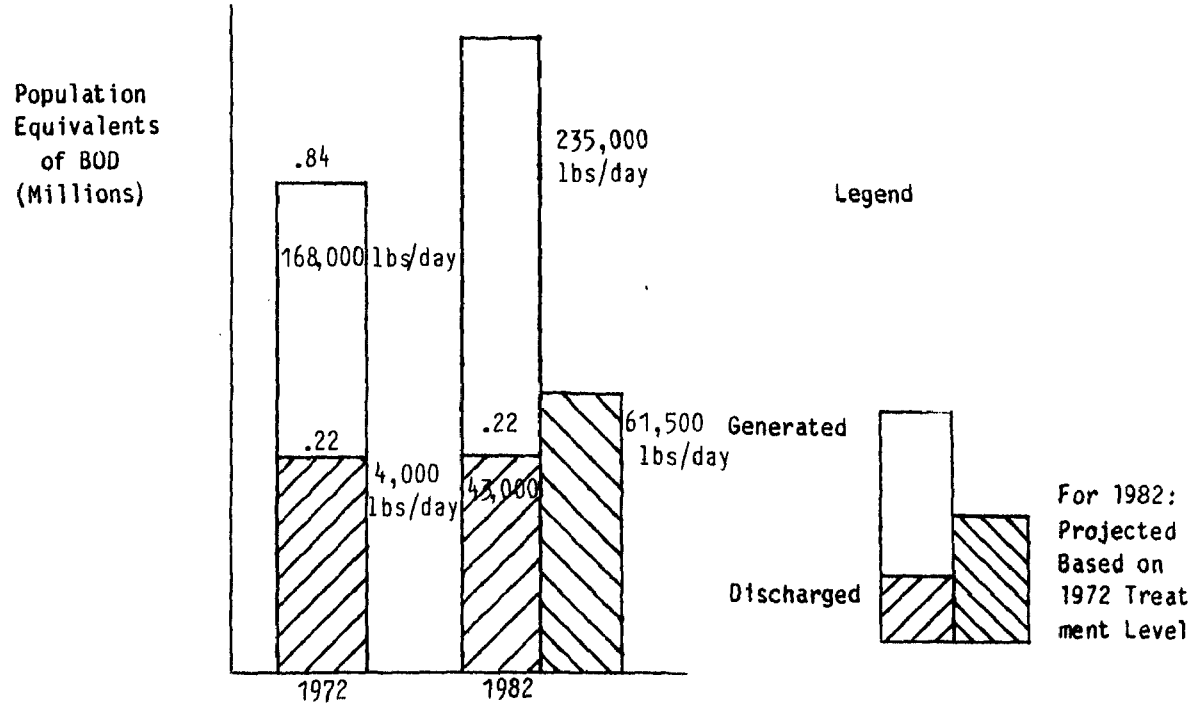
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

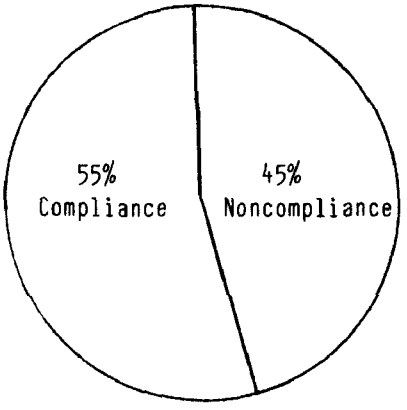
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	200	29	13
Facilities Meeting 1982 Permit Requirements+	100	18	6
Percentage of Facilities for Which Requirements Being Met	55%	62	46
Percentage of Flow For Which Requirements Met+	40%	76	57
Facilities Needing Upgrading	90	Unknown	Unknown

Total Permits in Effect in 1982: 300

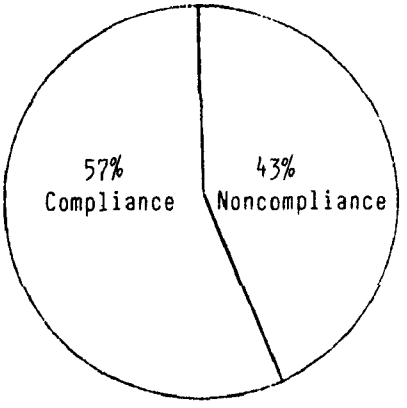
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

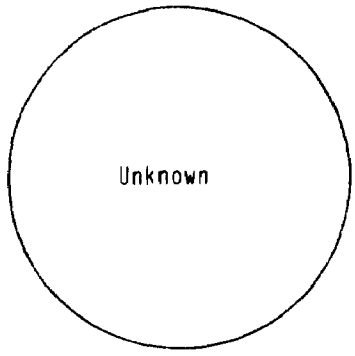
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	?	0	24
Facilities Meeting 1982 Permit Requirements+	?	0	23
Percentage of Facilities for Which Requirements Being Met	?	0	96
Percentage of Flow for Which Requirements Met+	?	0	99.6%

Total Permits in Effect in 1982: 500

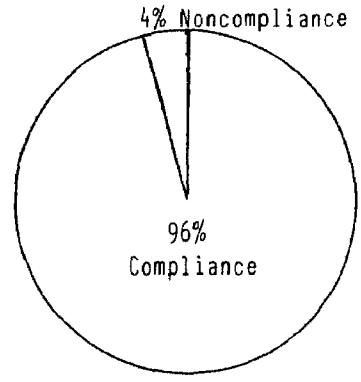
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

At this time NPS controls are voluntary. Research and development is continuing on potential control measures with the use of remaining 208 funds. Current cost estimates.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	S/W	M/L	S/L	N/A	S/L	I/L	N/A
Primary Pollutants	P,SS,T C,M,N	N, P SS, T	N, P SS, T	PH	N/A	Temp. M,T,SS	SS	N/A

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The state commences enforcement action when receiving water quality problems are obvious or a major nuisance exists.

EPA is responsible for enforcing compliance with NPDES Permit limits.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

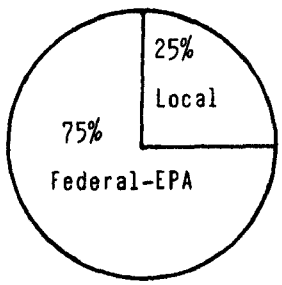
Total Number of Facilities:	97
Number of Pre-Administrative Actions:	89
Number of Administrative Actions:	7
Number of Judicial Actions:	1

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 326 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 245 Million
Other Federal:	$?
State:	$ 0
Local Match:	$ 81
Other Local:	$ 0

C. Program Activities

WATER DIVISION PROGRAMS

The Water Division is responsible for program management under two federal laws. These are the Clean Water Act and the Safe Drinking Water Act. Under the Clean Water Act the division manages three programs. These are: (1) the base or umbrella Water Pollution Control Programs funded under section 106, (2) Water Quality Management Planning funded under sections 205(j), 208 and 303; and the Clean Lakes Program funded under section 314 of the Act.

106

The Water Pollution Control Program is designed to implement those activities necessary to accomplish the national goal which is to restore and maintain the chemical, physical and biological integrity of the Nation's waters. These include:

1. Establishing and maintaining water quality goals and standards which will protect the state's waters;
2. Directing the state's efforts toward achievement of the national goals, whenever attainable, and developing programs and treatment levels which are necessary to attain the national goals;
3. Establishing priorities among abatement and prevention needs;
4. Providing a method to obtain the most benefit from water pollution control resources;
5. Establishing output commitments for each fiscal year, allocating resources and assessing program development progress; and
6. Providing the EPA grant funds to supplement state funds.

UNDERGROUND INJECTION CONTROL PROGRAM

The Safe Drinking Water Act required the Environmental Protection Agency (EPA) to develop minimum requirements for State programs to protect underground drinking water sources from endangerment by the subsurface employment of fluids through well injection. Those requirements have been established through regulations in 40 CFR Parts 122, 123, 124, and 146 and in Section 1425 guidance.

During FY82, Department activities relative to the UIC program centered on completing program development and all tasks necessary for State assumption and eventual program implementation. On July 6, 1982 the Department was delegated primacy for Class I, III, IV, and V wells.

WATER QUALITY MANAGEMENT PLANNING

There are three phases of planning that have been funded under the Act. Phase I was the river basin plans that were developed from funding under section 303. These plans provide an overview of total water and related land resources of the basin.

Phase II are the Areawide Waste Treatment Management Planning funded under section 208. The purpose of these plans is to identify the controls, regulatory programs and management agencies necessary to attain the water quality standards. This initial plan was conditionally approved by Governor Clinton in May, 1979. Subsequently three additional grants were awarded to the department to study the effect of best management practices in controlling source pollution and to develop implementation programs. These three grants are multiyear grants and are still active. Funding under section 208 ended with fiscal year 81 monies.

Phase III in the continuous planning process of Water Quality Management is being funded with 205(j) monies. The 1981 Municipal Wastewater Treatment Construction Grants Amendments authorized these funds. The Department has one grant at the present to develop the methodology to develop site-specific water quality standards. The authorization for funds is until 1985.

CLEAN LAKES PROGRAM

Section 314 of the Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500) directed the United States Environmental Protection Agency to assist the states in controlling sources of pollution which affect the quality of freshwater lakes and in restoring lakes which have deteriorated in quality. EPA fulfilled this mandate with the Clean Lakes Program, which provides financial assistance to the state to:

- Classify publicly-owned fresh water lakes according to water quality;
- Conduct diagnostic studies of specific publicly-owned lakes and develop feasible pollution control and restoration programs from them (Phase I); and
- Implement lake restoration and pollution control projects (Phase 2).

The Department was designated by the Governor's office on May 7, 1980 as the lead agency responsible for entering into cooperative agreements for protecting and restoring publicly-owned freshwater lakes. The Department has entered into seven (7) clean lake cooperative agreements.

VI. SITE-SPECIFIC SUCCESSES

In Arkansas two major success stories can be sited over the 1972-1982 decade: One story is about a specific river; the other covers the state as a whole.

For a specific site the Arkansas River cannot be ignored. Previous to 1970, all of the cities along this river discharged their sewage either raw or with primary treatment. Water quality was obviously poor at several locations along the entire reach.

Since that time every city has ceased raw and primary discharges and has gone to secondary treatment. Localized problems with nuisances and public health dangers have disappeared. The day is gone when the river was obviously polluted below every major city. The river is now considered a prime recreation spot from border to border across our state.

This does not mean that water quality problems no longer exist on the Arkansas River, but the ones that were obvious and distasteful are gone. Still remaining are problems with industrial discharges and toxics generated from point and non-point sources.

The other success story that must be told is one of holding our own against the rapid growth in population that our state experienced over the decade.

The state population grew by 19% over that time period, but with the increased level of treatment by most of the major dischargers in the state, the total load of waste discharged to the streams remained the same.

It certainly would be more desirable to be able to point at major improvements but in Arkansas' case, it seems that just holding our own against a tide of growth is significant.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

One success story of note in our state that has not been covered is the dramatic decrease in fish kills and in-stream concentration of insecticides in Eastern Arkansas. Fish kills were common occurrences in the early seventies, but due to the banning of these chemicals by the EPA, none has occurred in the last several years and in-stream/sediment/flesh concentrations have declined dramatically. We at this agency cannot take credit for this but we can say it has happened and give the credit to EPA.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- ____ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

Each of the above checked categories has the potential to seriously degrade our state's waters in the future and will greatly tax our capabilities to control them. What is not listed above, however, is beyond doubt the major cause of water quality degradation in our state and is also beyond our ability to improve. Non-point source pollution is its name and until effective control methods are implemented in this state, water quality will continue to decline into the foreseeable future in direct relationship with our population growth and changing land-use practices.

AGENCY PREPARING REPORT: Arkansas Dept. Pollution Control And Ecology

CONTACT PERSON & PHONE #: Jim Schell (501) 562-7444

DATE: September 12, 1983

State of California*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 19,950,000 1980 22,600,000
State Surface Area 158,693 sq. miles
# of River Systems/Basins 39
# of River and Stream Miles 37,000 mi.; # of Border Miles* 170 mi.
# of Lakes and Ponds and Acreage 4,800 / 1,180,000 ac.
# of Marsh or Wetlands ac./sq.mi. 500,000 ac. or 780 sq. mi.
# of Coast Miles 1,340 mi.
# of Estuary sq. mi. 702 sq. mi.

*Border Rivers:

Name/Mileage Colorado/170 Name/Mileage

Name/Mileage Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

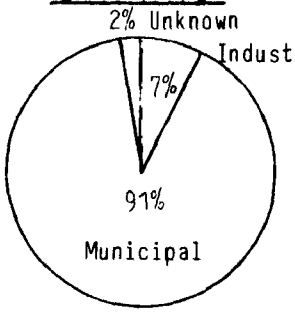
1. a. Miles Assessed: 9,343
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 7,991
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 195
   d. Miles Monitored: 4,993

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	8,050 mi.	560	391	342	9,343 mi.
	86%	6%	4%	4%	100%
1982	8,733 mi.	285	166	159	9,343 mi.
	93%	3%	2%	2%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	683	0
Miles Degraded:	0	0
Miles Maintained:	8,501	
Unknown:	159	

B. Lakes and Reservoirs

1. a. Acres Assessed: 1,110,722

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 623,421

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 141,550

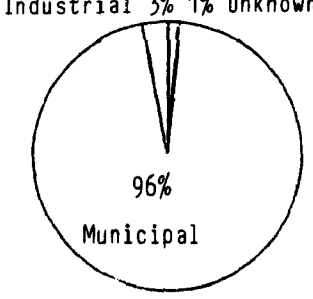
d. Acres Monitored: 546,937

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	1,024,323 ac.	32,300	2,038	28,661	1,087,322 ac.
	94%	3%	-	3%	100%
1982	1,094,515 ac.	1,480	1,793	12,934	1,110,722 ac.
	99%	-	-	1%	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	245	31,000
Acres Degraded:	180	0
Acres Maintained:	1,066,363	
Unknown:	12,934	

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	702	351
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	130	85
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	13	0
	d. Sq. Mi./Miles Monitored:	234	212

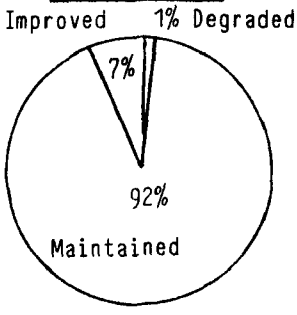
2. Evaluation of Support of Designated Uses

	Supported		Partially Supported		Not Supported		Unknown		Total Assessed	
1972	627	339	4	8	71	4	0	0	702	351
	89%	97%	1%	2%	10%	1%	-	-	100%	
1982	670	345	10	0	22	6	0	0	702	351
	95%	98%	2%	-	3%	2%	-	-	100%	

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

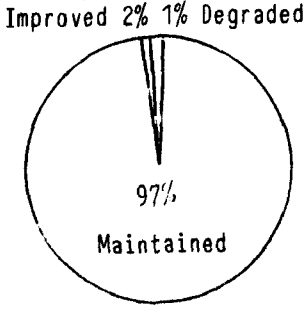
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	17	32
Sq.Mi.Degraded:	6	0
Sq.Mi.Maintained:	648	
Unknown:	0	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	5	3
Miles Degraded:	2	0
Miles Maintained:	341	
Unknown:	0	

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

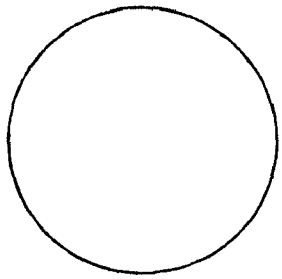
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

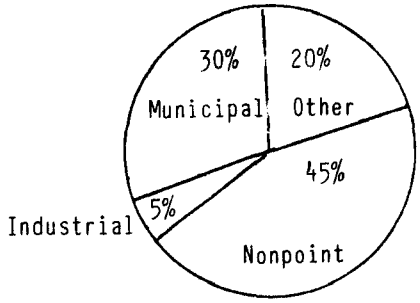


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

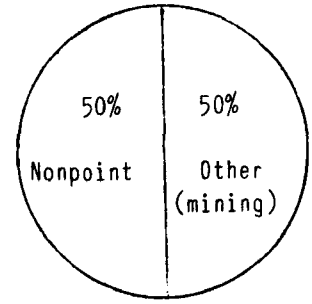
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

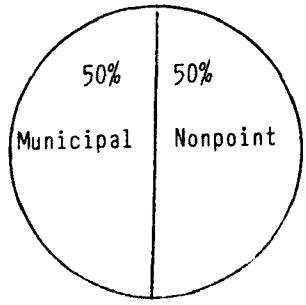
a. Streams and Rivers



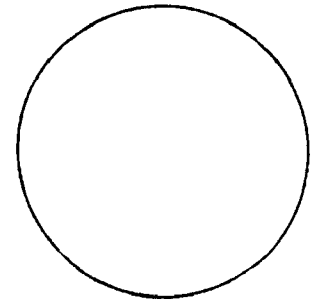
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X	X		X			Toxics
Industrial				X	X	X	X		Coli.
Non-Point	X	X	X		X	X	X	X(salts)	
Other (inc. natural)				X		X*			

*(mining-hvy. metals)

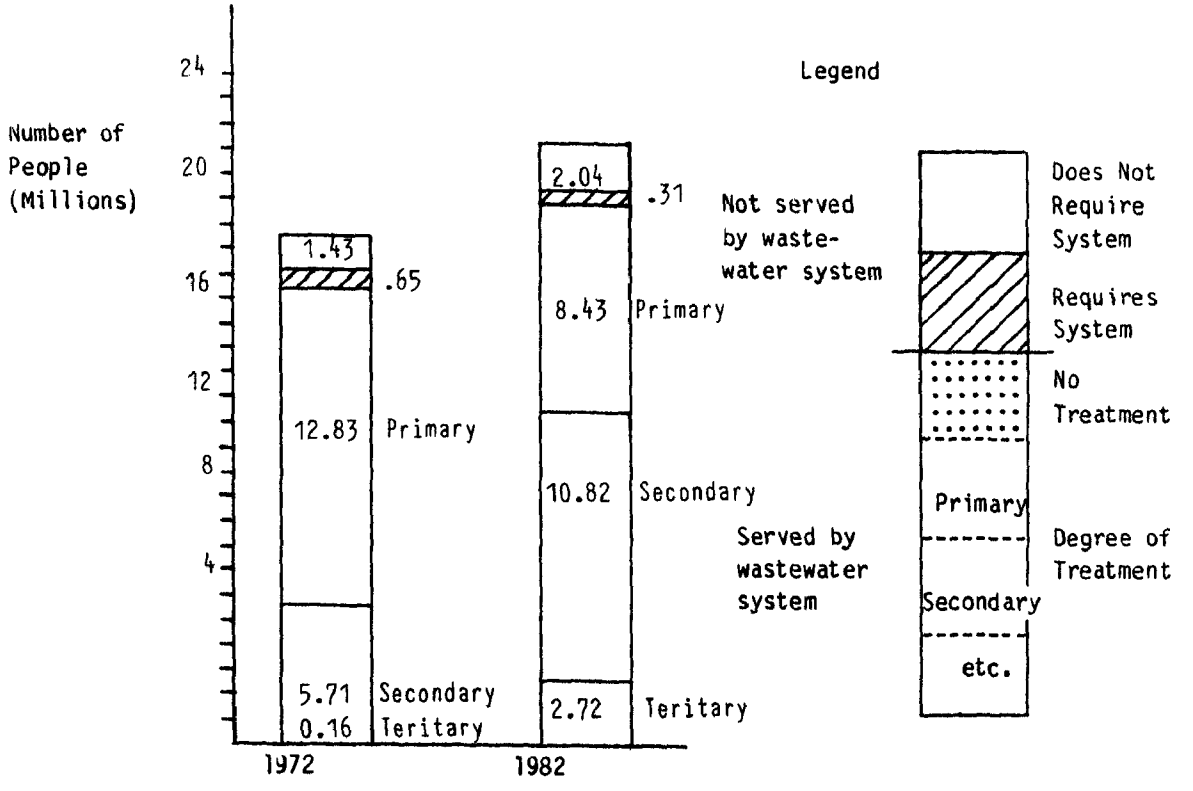
*Number of Stream/River Miles Affected by Toxics:	1016 + 66 New River
*Number of Lake/Reservoir Acres Affected by Toxics:	333
*Number of Estuary Square Miles Affected by Toxics:	22/0
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	1,437

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

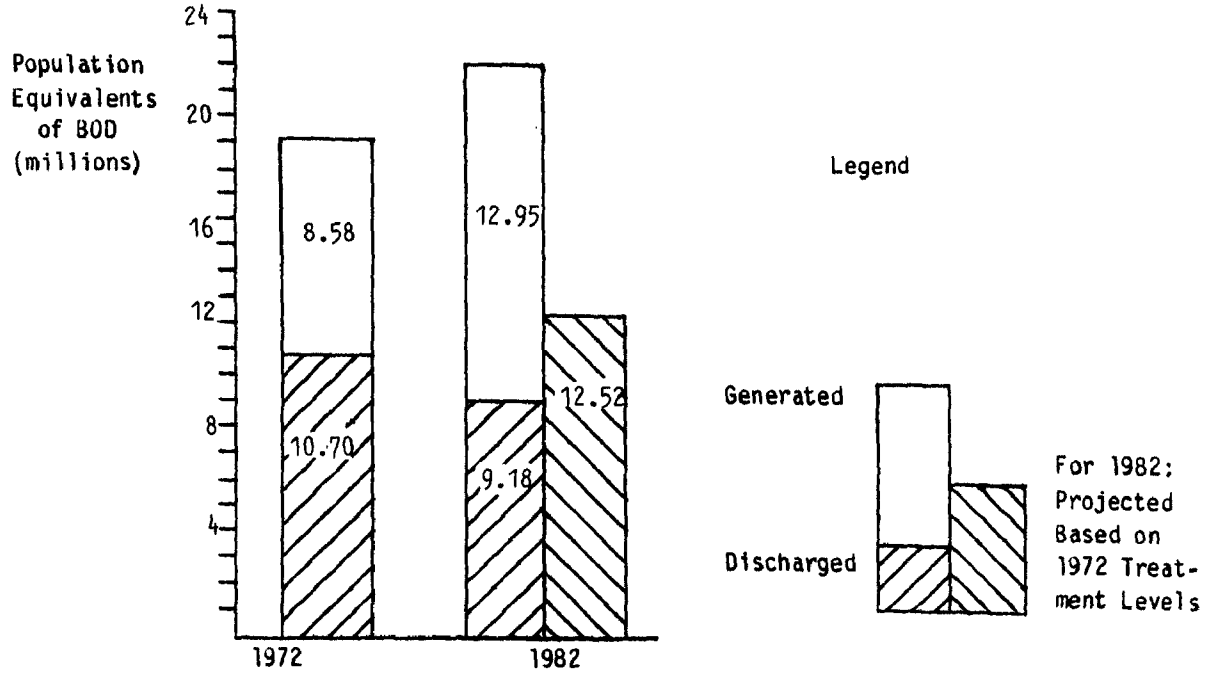
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

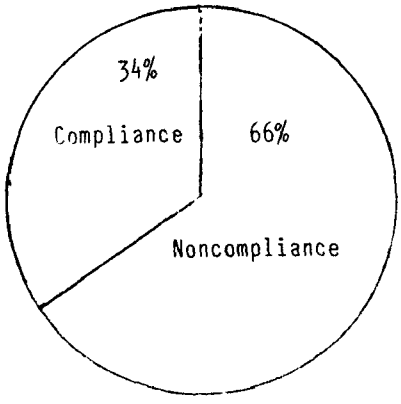
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	128	26	324	
Facilities Meeting 1982 Permit Requirements+	43	23	295	Total Permits in Effect in 1982 1,687
Percentage of Facilities for Which Requirements Being Met	34%	88%	91%	
Percentage of Flow For Which Requirements Met+	50%	98%	86%	
Facilities Needing Upgrading	88	1	17*	

+Includes "No-Discharge" Facilities

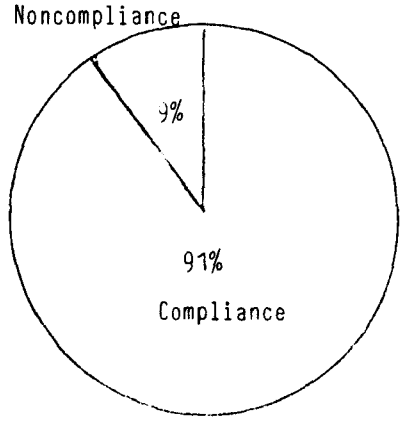
*(3 improvements under const.

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

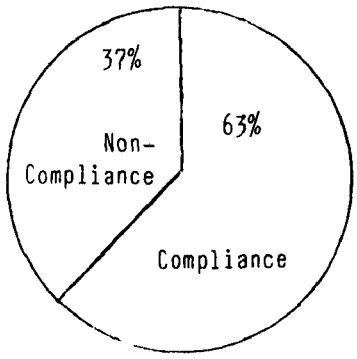
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	57	0	168	
Facilities Meeting 1982 Permit Requirements+	36	-	165	Total Permits in Effect in 1982 1,427
Percentage of Facilities for Which Requirements Being Met	63%	-	98%	
Percentage of Flow for Which Requirements Met+	77%	-	98%	

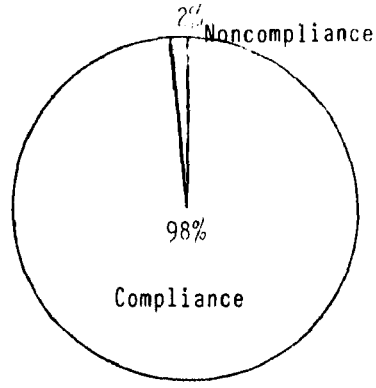
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Urban runoff has been a relatively minor, and localized threat to maintenance of beneficial uses, but has been a factor in Bay Area disturbance, and local estuary siltation. Agriculture represents a widespread threat to impairment of river, stream, lake and reservoir designated uses. Silviculture is also widespread, and logging in the North Coast and Sierras has major impacts on local streams. An ongoing discharge of heavy metals (esp. Cd and Cu) from both abandoned and active mining operations has affected fisheries in the Shasta Lake area, and throughout the Sierras, with a moderate effect on designated use maintenance. Construction is a moderate and localized problem, notable along with agriculture for siltation, as in the south coastal lagoons and estuaries. Dams and channelization have a minor and localized effect, primarily associated with downstream low flow. Saltwater intrusion has become a moderate problem, in local areas such as the San Francisco Bay delta and Oxnard. Bay Area disturbance has also been affected by urban runoff (above), industrial discharge, and the cleanup of waste discharges (suggested removal of nutrients). Non-point source problems in general represent about 50% of the proportion of use impairment of streams, lakes, and estuaries state wide (part II D).

California does not have USDA Rural Clean Water Programs. The Federal Clean Water Act, 1981 amendments, included a subsection [S 205(j)] for funding (EPA) a water quality management planning program. The State Water Resources Control Board has primary program authority, while local, regional, and interstate agencies (Program Advisory Committee, PAC) will provide an advisory role, and review program development and implementation as well as provide an impartial review of program activities.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	S/W	M/W	M/L	M/L	I/L	M/L	S/L
Primary Pollutants	M,T,SS oil & grease	Nut,P,SS OxDe,Sal	SS, T	M, pH OxDe	SS, T	Lo Flo	Sal	P, M

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Waste discharge permits, an essential element of the state water quality control program, set limits on discharge into California waters. Permits specify the type, amount, and concentration of the discharge; establish time schedules for compliance; and require a self-monitoring program. Regional Boards run the program. The State Water Resources Control Board provides legal and technical assistance and hears appeals. For violation or threatened violation of an order, the Regional Board can issue cleanup and abatement orders, adopt cease and desist orders, and seek fines of up to $25,000 per day of violation.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

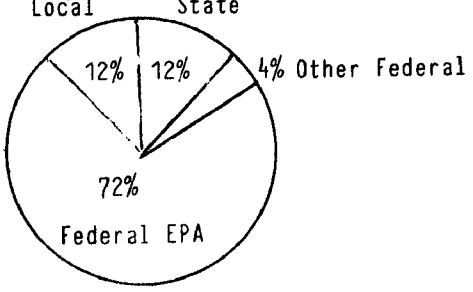
Total Number of Facilities:	35
Number of Pre-Administrative Actions:	24
Number of Administrative Actions:	8
Number of Judicial Actions:	3

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 4,832 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 3,474 Million
Other Federal:	$ 200
State:	$ 579
Local Match:	$ 579
Other Local:	$

C. Program Activities

REGULATORY PROGRAM

1. Permitting: The nine California Regional Water Quality Control Boards (Regional Boards) prepare, issue, review, revise, and rescind waste discharge orders that specify conditions to be met by dischargers, such as effluent limitations, receiving water requirements, and time schedules. Waste discharge requirements for waste discharges to surface waters are issued as NPDES Permits pursuant to the California Water Code and the federal Clean Water Act. The requirements are aimed at achieving secondary treatment for publicly owned (municipal) treatment facilities including, where appropriate, pretreatment standards established for industrial wastes and best available control technology for other industrial facilities.

   Waste discharge requirements are issued pursuant to the California Water Code for the disposal of wastewater to land and for some non-point sources of wastewater. These requirements include effluent limitations and other specifications for the protection of the State's important ground water supply.

2. Surveillance, Monitoring, and Inspections: The statewide water quality monitoring programs include surface and ground water monitoring, compliance evaluation activities, and special investigation projects.

   Selected ground-water basins and fresh and marine waters are the subject of a monitoring program conducted to assess the impacts of waste discharges on ground and surface water quality.

   Compliance monitoring inspections are conducted for waste dischargers to assure compliance with requirements contained in waste discharge orders and/or enforcement remedies.

3. Enforcement: This program ensures compliance with waste discharge orders through the use of administrative and judicial remedies, such as notice of violation letters, cleanup and Abatement Orders, Cease and Desist orders, and referral to the State Attorney General.

4. Toxic Substances Control: The functions within this program are encompassed within all water quality activities.

PLANNING PROGRAM

Water Quality Control Planning: There are 16 hydrologic basins in the State, and water quality control plans (basin plans) have been adopted for each basin. Three additional water quality control plans have been adopted for statewide concerns. These plans designate beneficial uses for the waters within each basin and specify water quality objectives to protect the uses. The plans are reviewed and revised periodically due to changes of beneficial uses or for consistency with other relevant plans and policies or compliance with federal/state laws and regulations. The basin plans recommend actions to achieve water quality goals, including programs to detect long-term effects of degradation. Important control actions from areawide waste management plans (208 plans) are incorporated into the basin plans.

CLEAN WATER PROJECTS PROGRAM

1. Clean Water Grants: With federally appropriated money and the sale of State Clean Water Bonds, a program of assistance for planning, design, and construction of municipal wastewater treatment plants is administered by the State.

2. Operator Training: Recognizing that the most carefully planned and complete wastewater treatment facilities are not self-sufficient, the State requires that the plants be operated by qualified, certified operators. The State classifies all facilities according to their respective operator needs, trains operators for a minimum of 3,800 trainee days, tests semi-annually for five levels of competency, and certifies qualified examinees.

3. State Assistance Program: Because some clean water activities are excluded from the Federal Clean Water Grant program, the State funds projects such as erosion and urban runoff control in Lake Tahoe, exportation of highly saline water from the Santa Ana Watershed basin, and water conservation and reclamation projects through a State grant program.

PUBLIC PARTICIPATION

Essentially all the activities of the State and Regional Boards have built-in mechanisms for public input, and the majority of these are mandated by law or regulation. The State Board and Regional Boards publish notices of business meetings and formal workshops, as well as all special hearings; a public forum segment of the business meetings are set aside each month; written and oral comments and other public input are encouraged and welcomed.

VI. SITE-SPECIFIC SUCCESSES

The Union Carbide Corp. (UCC) operates a tungsten mine and mill in Pine Creek Canyon, north of Bishop (Inyo County). The discharge of untreated mine drainage water for many years severely polluted Pine Creek, which had sustained a significant trout fishery prior to the expansion of the mine. In 1974, the Regional Board adopted an NPDES permit with stringent effluent limits and a time schedule for the UCC to meet them. The UCC installed the necessary pollution abatement equipment and now the creek again supports most of the aquatic habitat and fishery it once did.

The South San Luis Obispo County Sanitation District regional sewerage system had discharged onto the beach at Oceano, one of the most important Pismo clamming beaches in the State, for nearly ten years. The beach was posted and the public warned against taking shellfish in the area. Recreational use of the beach area has been intense. With the construction of an upgraded sewage treatment plant and especially a new outfall with diffuser, the beach has been opened up to unlimited beneficial uses.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

California has had to deal with many special problem areas in the last decade. Ground water salinity is and has been a major problem. The interrelationship between water quality and water quantity is very important in many areas including the Sacramento-San Joaquin delta. The protection of the quality of Lake Tahoe is of prime importance. Water quality problems in streams crossing the international border with Mexico and adjacent ocean waters have been and are a concern. A number of toxics have been a concern in the past. Recent advances in analytical techniques and increased awareness of toxic problems have moved this issue, particularly with respect to ground water, to the forefront.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_X_ - Identification and control of toxic pollutants from industrial and non-point sources.

_____ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_X_ - Pollution arising from abandoned industrial and/or mining facilities.

Major remaining problems in addition to the maintenance activity of keeping dischargers in compliance with requirements fall into three areas: ground water quality and quantity with special concern for pollution by toxic organics, alteration of water quality from both point and non-point sources due to population and development pressures, and problems of financing municipal collection and treatment facilities. Contamination of ground water with toxics has become a major problem. Of particular concern is the presence of organics such as solvents and pesticides which may cause problems at extremely low levels due to their carcinogenic properties. These toxics originate from leaking underground tanks, improper industrial disposal, and pesticide use. Overdraft of ground water has caused seawater intrusion, and man's use of water has added to the salt load on ground water basins.

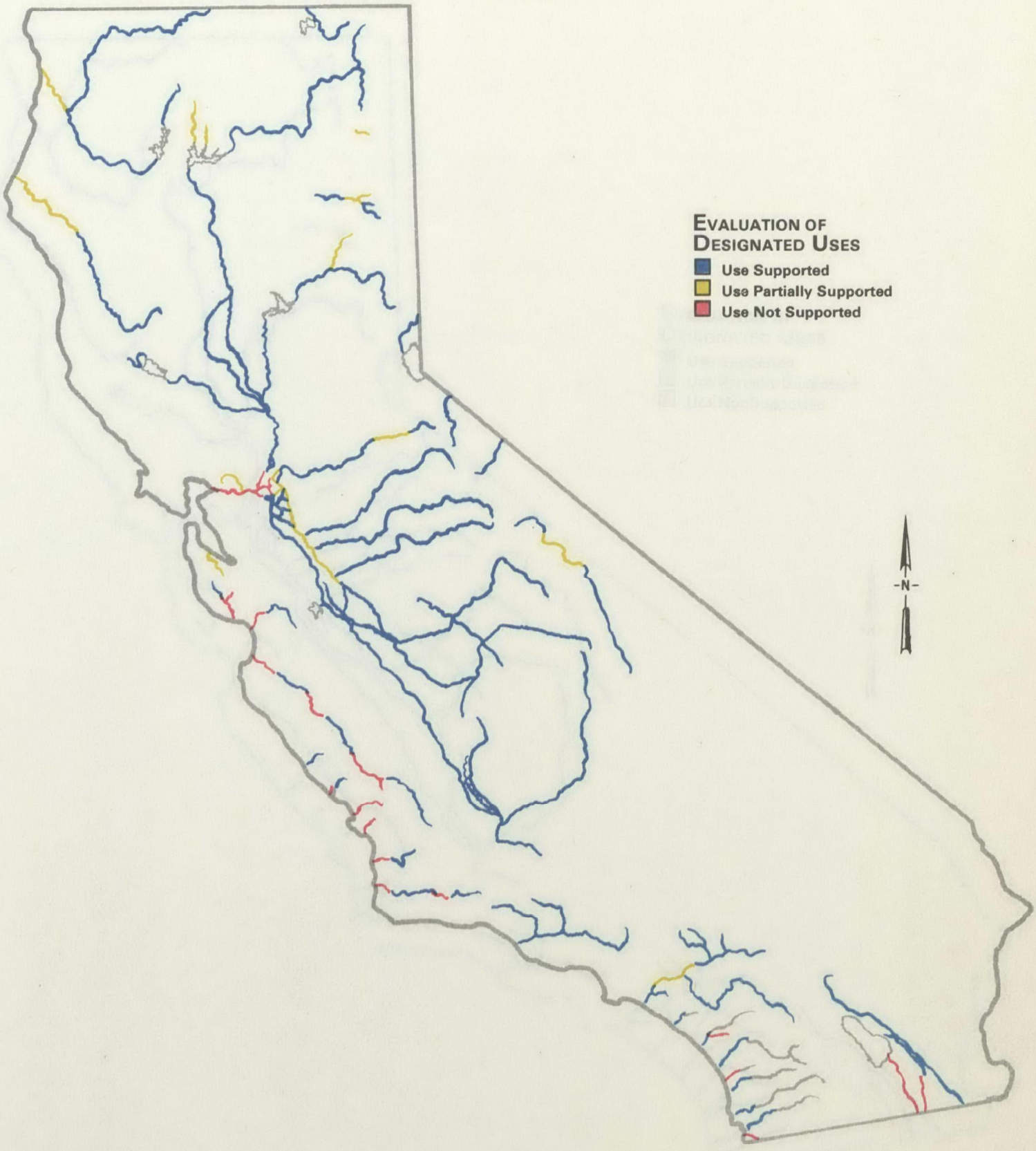
AGENCY PREPARING REPORT: State Water Resources Control Board

901 P Street, Sacramento, CA 95814

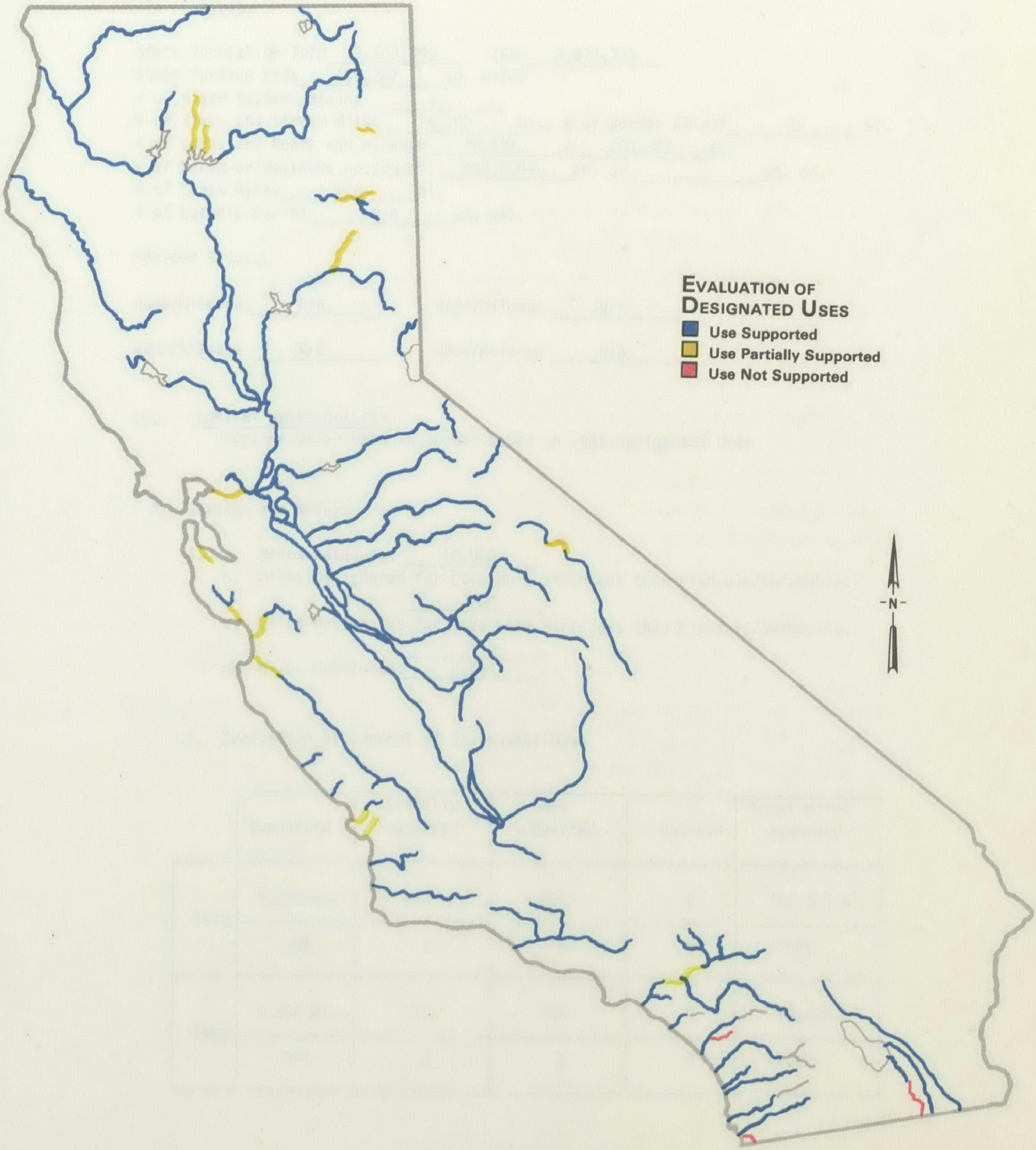
CONTACT PERSON & PHONE #: Ed Anton (916) 322-3133

DATE: September 21, 1983

CALIFORNIA
1972



CALIFORNIA
1982



State of Colorado*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,209,596 1980 2,877,726
State Surface Area 104,247 sq. miles
# of River Systems/Basins 4
# of River and Stream Miles 14,100 mi.; # of Border Miles* 0 mi.
# of Lakes and Ponds and Acreage 30,421 / 260,282 ac.
# of Marsh or Wetlands ac./sq.mi. 500,000+ ac. or _____ sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage N/A Name/Mileage N/A

Name/Mileage N/A Name/Mileage N/A

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

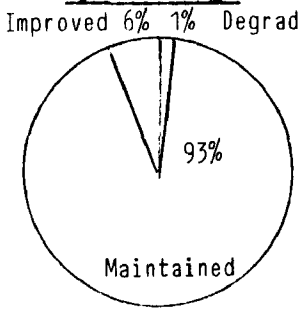
1. a. Miles Assessed: 10,000
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 700
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 130
   d. Miles Monitored: 2,765

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	9,273 mi.	122	605	0	10,000 mi.
	93%	1	6	0	100%
1982	9,394 mi.	171	435	0	10,000 mi.
	94%	2	4	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	110	430
Miles Degraded:	---	149
Miles Maintained:	9,421	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 50,000

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

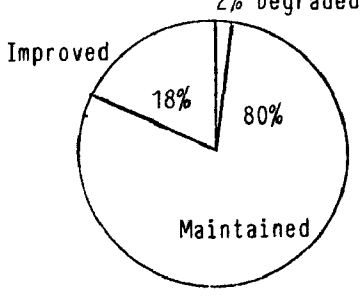
d. Acres Monitored: 4,953

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	40,000 ac.	10,000	0		50,000 ac.
	80%	20%	0		100%
1982	49,953 ac.	5,000	0		54,953 ac.
	91%	9%	0		100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

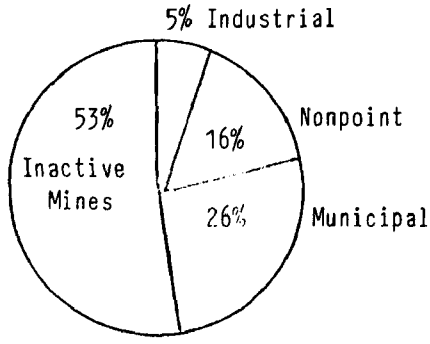


	Within Category	Change in Category
Acres Improved:	10,000	
Acres Degraded:	1,000	
Acres Maintained:	43,953	
Unknown:	0	

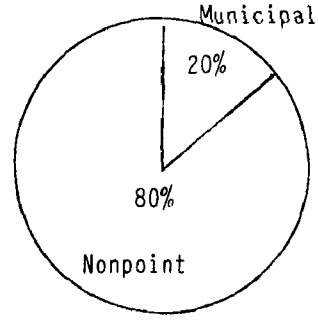
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

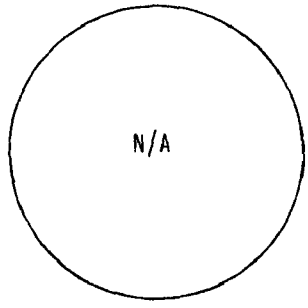
a. Streams and Rivers



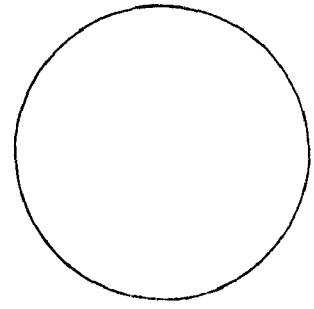
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X		X			NH-3		TRC	
Industrial				X		Metals			
Non-Point			X						
Other (inc. natural)			X						

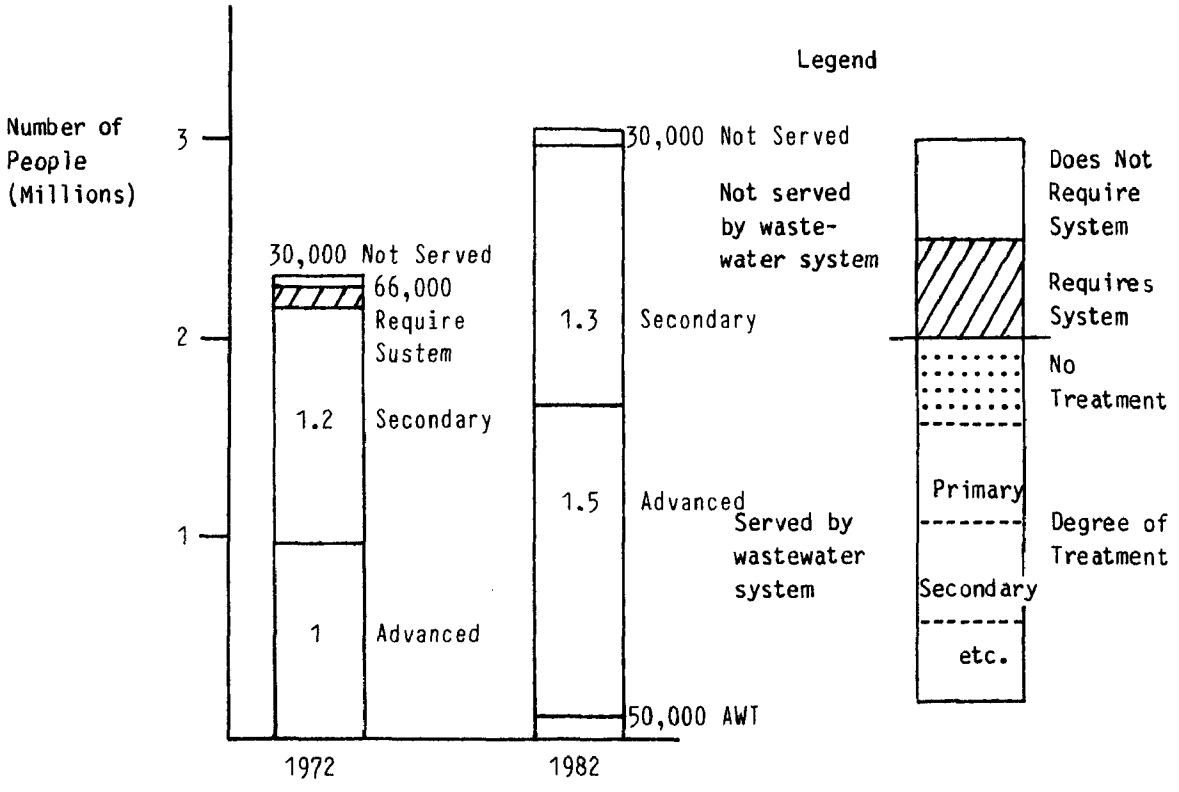
*Number of Stream/River Miles Affected by Toxics:	564
*Number of Lake/Reservoir Acres Affected by Toxics:	0
*Number of Estuary Square Miles Affected by Toxics:	N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

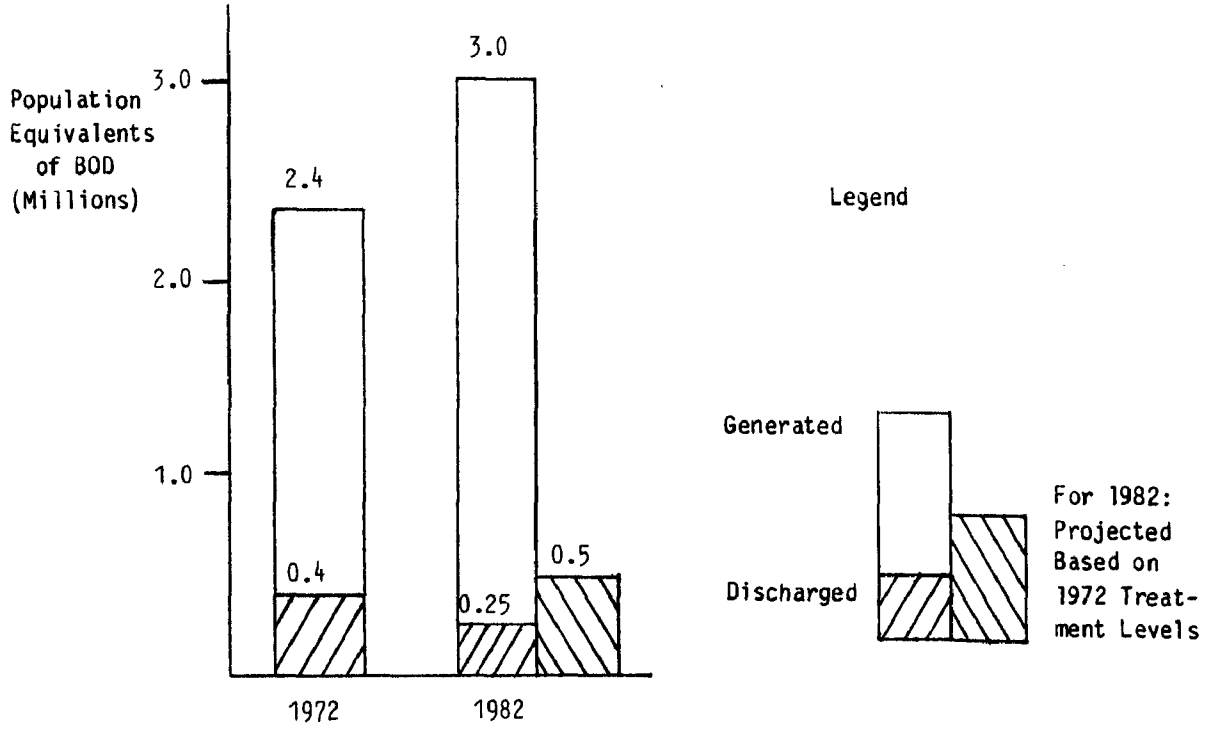
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

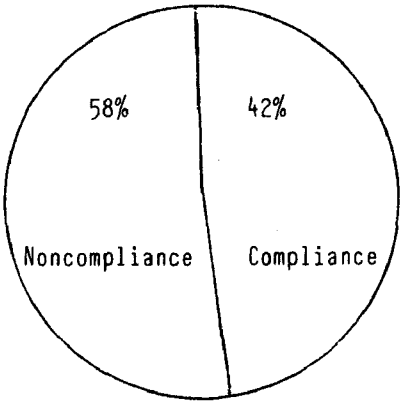
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	15	56	
Facilities Meeting 1982 Permit Requirements+	30	8	51*	Total Permits in Effect in 1982 450
Percentage of Facilities for Which Requirements Being Met	42%	53%	83%	
Percentage of Flow For Which Requirements Met+	52%	58%	82%	
Facilities Needing Upgrading	62	9	6	

+Includes "No-Discharge" Facilities

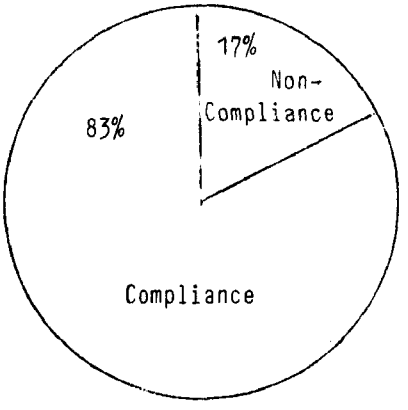
* Non-compliance does not include fecal coliform/TRC problems which are design/operational in nature. If included compliance would decrease to 77%.

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

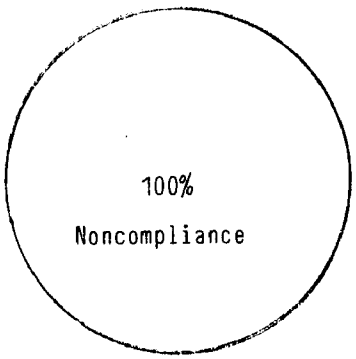
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	4	57	Total Permits in Effect in 1982 550
Facilities Meeting 1982 Permit Requirements+	0	3	50	
Percentage of Facilities for Which Requirements Being Met	0	75%	87%	
Percentage of Flow for Which Requirements Met+	0	90%	68%	

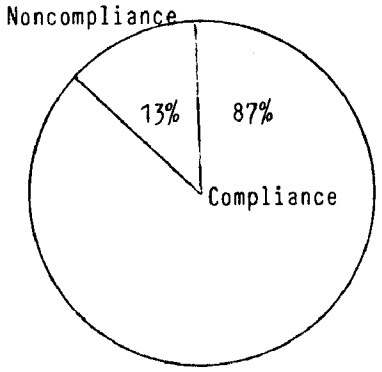
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Non-point pollution control has focused on the assessment of agricultural, inactive mine, and urban runoff sources. Waters diverted for irrigation contribute to salt loading of several rivers in Colorado, the most significant of which is the Colorado River system. Colorado is participating with the other Basin states to control salinity and several USDI and USDA programs are being implemented to reduce salt loading from agricultural sources.

Uncontrolled drainage from inactive mine and mill sites is a major reason for non-attainment of water quality goals in Colorado. The most significant problems have been identified and in several cases improvements made where old sites have been restored by active operators. Water quality degradation remains at most inactive sites because a process of evaluating for regulating and controlling drainage has not been developed and cost-effective techniques for treating inactive mine discharges have not been evaluated.

The Denver Regional Council of Governments evaluated pollutant loading from different urban land uses as a part of the Nationwide Urban Runoff Program. They are exploring possibilities for implementation.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent*	3* M/2*	11* I/3*	1* I/0*	5* S/1*	0/0	N/A	0/0	N/A
Primary Pollutants	Metals TSS,BOD Nut.	TDS	TSS	Metals			N/A	

*Assessed/Control Projects

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: work with violators to bring facilities into compliance with permit conditions, and taking enforcement actions where necessary. Nineteen civil penalties resulting in $128,000 fines were levied in FY '83.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

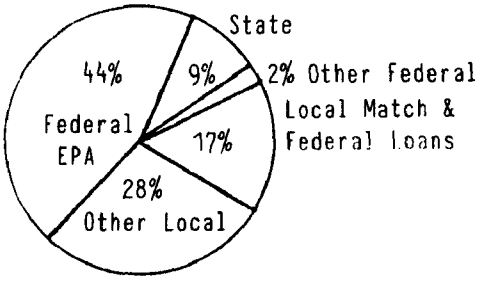
Total Number of Facilities:	20
Number of Pre-Administrative Actions:	4
Number of Administrative Actions:	12
Number of Judicial Actions:	4

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 547 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 243 Million
Other Federal:	$ 10
State:	$ 50
Local Match:	$ 90
Other Local:	$ 154*

* Includes 126 M bond issue passed in metropolitan Denver in 1982.

C. Program Activities

Colorado's water quality program is founded upon stream classifications and standards and technology based euffluent limits. Regulatory mechanisms to implement the water quality program are established through discharge permits and control regulations. These processes, which are state responsibilities, have facets which are dependent upon local and regional planning and decision making. They are coordinated through 208 plans. The Water Quality Control Division approves site applications for domestic treatment facilities, reviews plans and specifications for wastewater facilities, and administers the construction grants program for both state and federal monies. The water quality monitoring is used to establish background stream quality and to identify where water quality based effluent limits are required. Both fixed stations monitoring and special water quality studies are used in this program. The Division has conducted many schools on wastewater plant operations and maintenance and licenses treatment plant operators in order to improve treatment plant operations.

VI. SITE-SPECIFIC SUCCESSES

Major water quality improvement has occurred on two segments of the South Platte River. Control of point source discharges from several sugar beet facilities, meat packing houses, and municipal wastewater treatment plants significantly reduced BOD loading to the lower portion of the river and has resulted in a major water quality improvement upstream. The South Platte River through the Denver metropolitan area has improved due to the control or elimination of industrial and municipal wastewater. A special survey of the Platte River through Denver in 1976-1977 resulted in the elimination of over 15 unauthorized discharges. Improvement of the quality of the Platte and two of its tributaries in Denver, Cherry Creek and Clear Creek, has been accompanied by the development of an extensive greenway and park system along the river which provides water based recreation opportunities for metro area residents.

Drainage from inactive mine and mill sites is a major reason for non-attainment of water quality goals. In several cases mining companies have re-opened or reworked old sites and in the process have improved the quality of drainage waters from the sites. The most significant improvement was made by the AMAX Company in the pre-development mine work for the Mt. Emmons project near Crested Butte. A plant was constructed to treat drainage water from the old Keystone Mine, which virtually removed all metals from the water and as a result a cold water fishery has been established in Coal Creek below the mine.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

A major part of the water quality program over the past decade has been to maintain the existing high quality water in the light of new development. This was accomplished through the establishment of water quality standards and stream classifications. Several years of development went into the Basic Standards and many hours of public involvement, statewide, were included in the classification hearings and deliberations. Other major concerns have been to prevent the proliferation of small wastewater facilities as the state increases its population and to improve the operations and maintenance of wastewater facilities.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- _____ - Groundwater resource quality protection or supply assurance.
- _____ - Identification and control of toxic pollutants from industrial and non-point sources.
- _____ - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

All of the above are important to Colorado, however, the two checked will probably require the greatest programmatic efforts. In addition, the watersheds of three major reservoirs are about to undergo rapid urbanization. Protection of these reservoirs will be a major concern. The Division will continue to press for non-proliferation of small wastewater facilities as the state's population expands. The Division needs a better understanding of existing water quality on secondary streams and their tributaries in terms of meeting adopted water quality standards, and there is a need to develop more site specific biological data base and analysis systems.

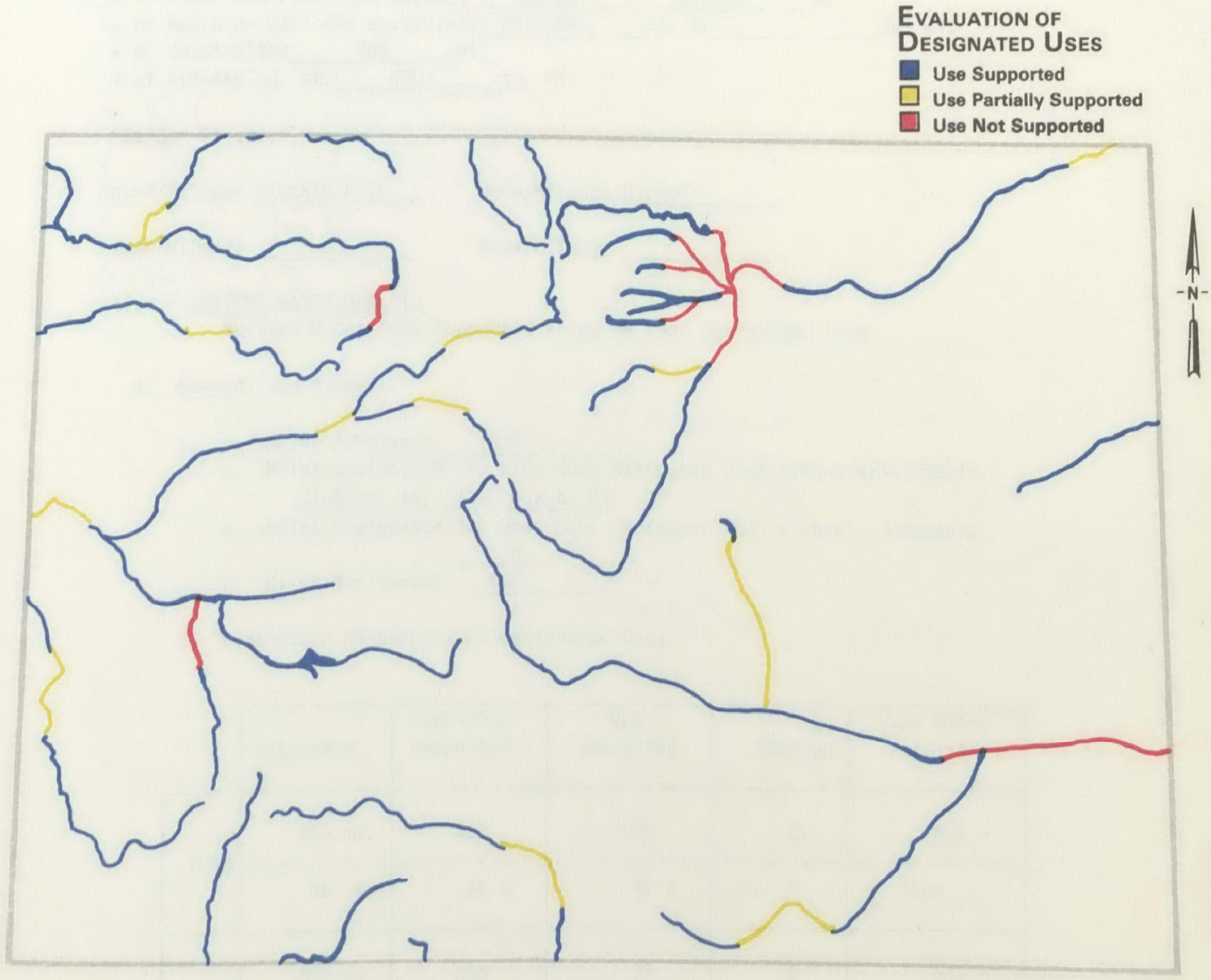
AGENCY PREPARING REPORT: Water Quality Control Division

CONTACT PERSON & PHONE #: J. Robert Owen (303) 320-8333 ext. 3466

DATE: August 25, 1983

COLORADO
1972

COLORADO
1982



State of Connecticut*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,032,200 1980 3,107,576
State Surface Area 5,009 sq. miles
# of River Systems/Basins 334 Subregional Basins (Average 20 mi^2 in size)
(# of River and Stream Miles 8,400*(1) mi.; # of Border Miles* 11 mi.
# of Lakes and Ponds and Acreage 6,000 / 82,893 ac.
# of Marsh or Wetlands ac./sq.mi. 657,000 ac. or _____ sq. mi.
# of Coast Miles 253 mi.
# of Estuary sq. mi. 600 sq. mi.

*Border Rivers:

Name/Mileage Pawcatuck/10 Name/Mileage Byram/1

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 839
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 75-Class AA, 173-Class A*(2)
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 498

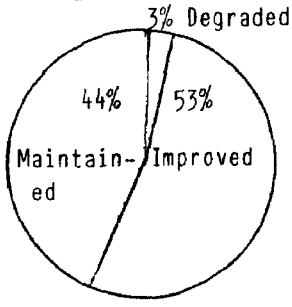
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	294 mi.	300	245	0	839 mi.
	35 %	36 %	29 %	0	100%
1982	538 mi.	230	71	0	839 mi.
	64 %	28 %	8 %	0	100%

NOTES(1) - Approximately 90% of which is protected for existing or potential public water supply (no discharges permitted by State law and policy).
(2) - Class AA = existing public water supply
Class A = potential public water supply

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	121	326
Miles Degraded:	25	0
Miles Maintained:	367	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 38,840

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 20,000 - Public Water Supply Reservoirs

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

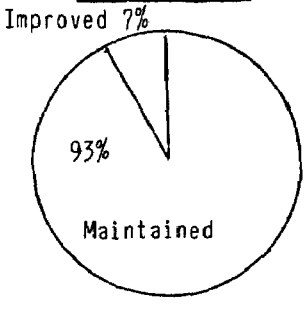
d. Acres Monitored: 38,840

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	36,680 ac.	2,160			38,840 ac.
	94%	6%			100%
1982	37,030 ac.	1,810			38,840 ac.
	95%	5%			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	2,180	350
Acres Degraded:	0	0
Acres Maintained:	36,310	
Unknown:	0	

C. Estuaries and/or Oceans

		Estuaries	Oceans
1. a.	Square Miles/Miles Assessed:	600	/
b.	Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/ 0
c.	Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	/ 0
d.	Sq. Mi./Miles Monitored:	85	/

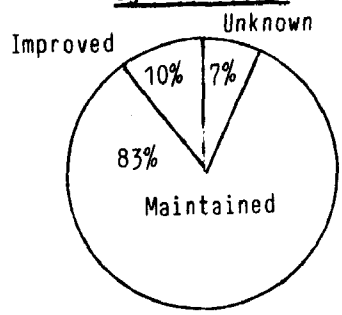
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	471	75	11	43	600
	78 %	13	2%	7%	100%
1982	478	73	6	43	600
	80 %	12%	1%	7%	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

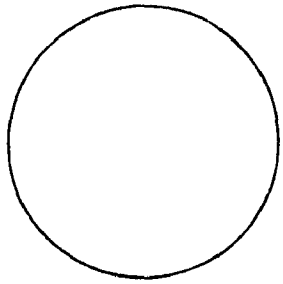
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	54	7
Sq.Mi.Degraded:	0	0
Sq.Mi.Maintained:	496	
Unknown:	43	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

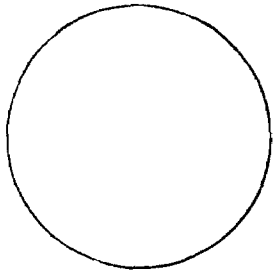
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

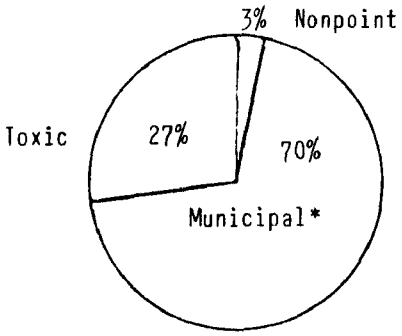


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

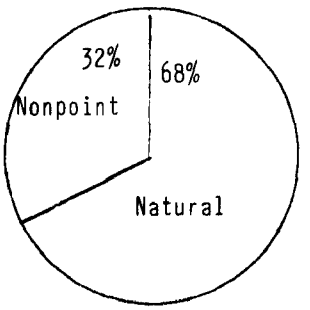
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

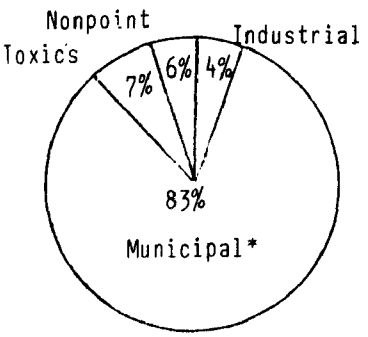
a. Streams and Rivers



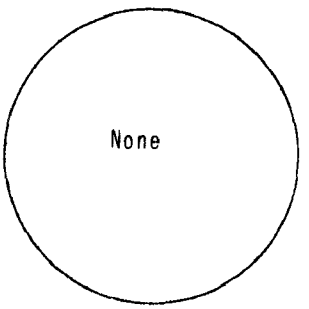
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



*Includes significant combined sewer overflow problems

2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						D.O./Coliform
Industrial		X		X	X	X			Toxics/pH
Non-Point	X	X	X	X			X	Iron	Coliform/turb
Other (inc. natural)									

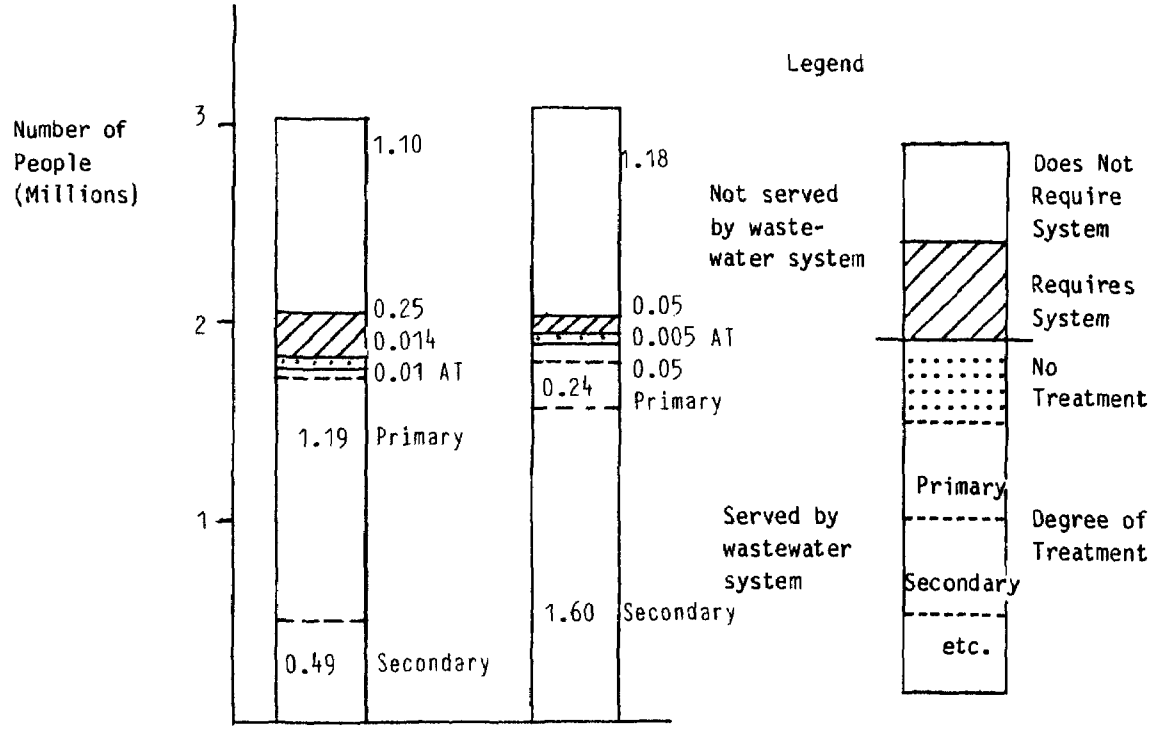
*Number of Stream/River Miles Affected by Toxics: 110
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 6
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

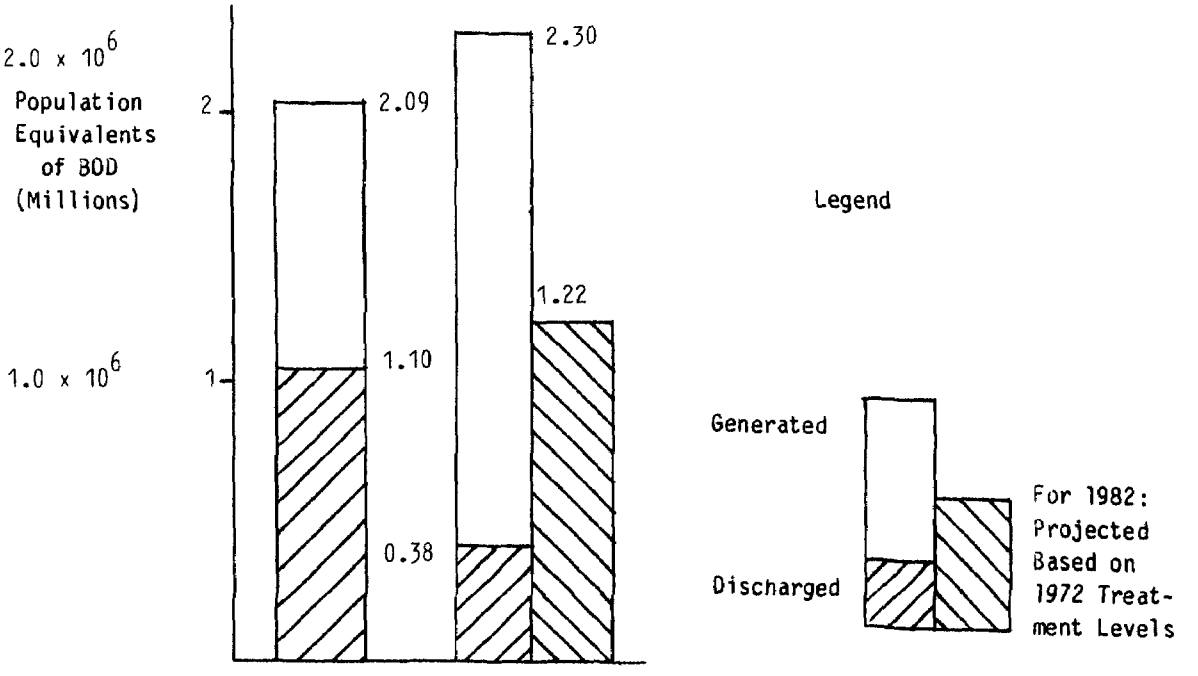
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

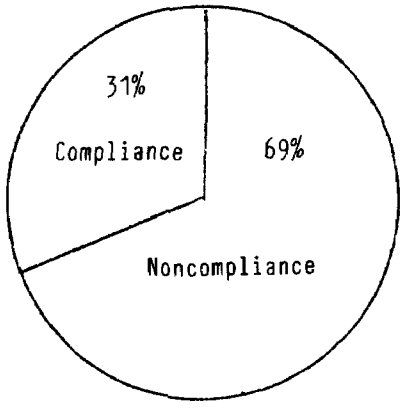
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	48	15	39	
Facilities Meeting 1982 Permit Requirements+	15	7	36	Total Permits in Effect in 1982 85
Percentage of Facilities for Which Requirements Being Met	31%	47%	92%	
Percentage of Flow For Which Requirements Met+	31%	69%	88%	
Facilities Needing Upgrading	39	15	3	

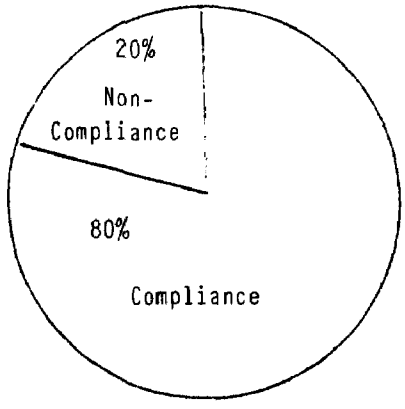
+Includes "No-Discharge" Facilities

b. *Significant Municipal Facility Compliance: 1972 vs. 1982*
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

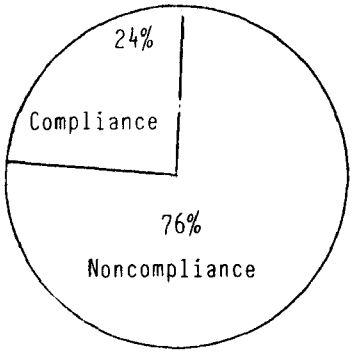
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	93	28	62	
Facilities Meeting 1982 Permit Requirements+	22	19	55	Total Permits in Effect in 1982 550
Percentage of Facilities for Which Requirements Being Met	24%	68%	89%	
Percentage of Flow for Which Requirements Met+	46%	75% *	85%	

+Includes "No-Discharge" Facilities

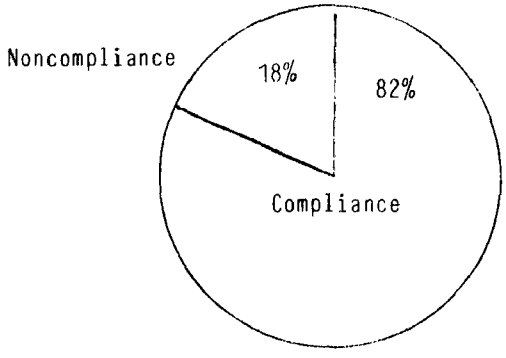
*Pfizer's 99 MGD discharge is excluded from this calculation

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

In Connecticut, non-point sources of pollution affects surface water quality in varying degrees. NPS related surface water problems are not, however, as significant as industrial wastewater discharges and municipal sewerage problems. In the past decade numerous NPS studies were conducted and, where appropriate, NPS control programs implemented. The status of planning, known NPS problems and control programs are summarized below.

Urban Runoff - Studies on a statewide basis using empirical "desk-top" analysis methods plus limited water quality monitoring. Conclusions: 1) not a major statewide problem; 2) short term in nature; 3) consider use of simple BMP's, like stormwater retention, when new development occurs; and 4) account for when investigating point source treatment needs.

Agriculture - Not a major statewide problem but may cause local impacts. Approximately 2% of state designated as priority for special AG NPS project eligibility. Conservation districts are organized to seek implementation of BMP's. State WPCA issues administrative orders when voluntary compliance fails. One special AG BMP watershed demonstration project is near completion.

Silviculture - Not a water quality problem.

Mining - Not a water quality problem.

Construction - A statewide threat to water quality. Municipal responsibility to minimize this problem except for state sponsored projects where it is a state WPCA responsibility. Numerous authorities exist to minimize this potential NPS.

Hydrologic Modification - Significant potential problem which has been minimized by numerous state and federal regulatory program. A number of low flow problems linger which should be resolved using existing regulatory tools.

Salt Water Intrusion - Not a surface water quality problem.

Residuals - Significant problem impacting numerous smaller streams. A major groundwater quality concern. State requires discharge permits for leachate discharges and considers surface water impacts during permit review process. Routine monitoring is required in all discharge permits.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/W	M/L	N.A.	N.A.	M/W	M/L	N.A.	S/L
Primary Pollutants	C, OxDe*	Nut, T, SS			T,SS	Loflo, Nut		OxDe Nut,pH,O**

*important to measure as sediment oxygen demand when investigating point source treatment needs
**Iron

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The Connecticut Department of Environmental Protection uses a variety of methods to obtain compliance including technical assistance and training, non-compliance notification and follow-up civil penalties, administrative orders, cease and desist orders and consent orders. During 1982 the Water Compliance Unit issued 161 new administrative orders that brought the cumulative total to 3221 since May 1, 1967. The program is comprehensive in that it deals with NPDES discharges, pretreated and other discharges to municipal sewers and discharges to the groundwaters. Program goals are to regulate all discharges through a comprehensive statewide program requiring treatment of wastewaters consistent with technological feasibility.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

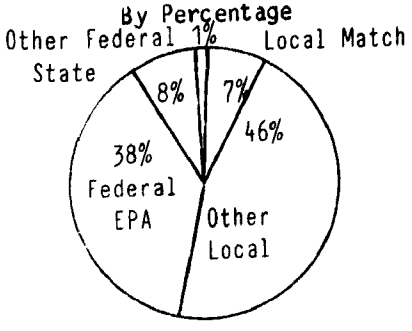
Total Number of Facilities:	27
Number of Pre-Administrative Actions:	1
Number of Administrative Actions:	23
Number of Judicial Actions:	3

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,241 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 468 Million
Other Federal:	$ 12
State:	$ 106
Local Match:	$ 82
Other Local:	$ 573

C. Program Activities

1972 - CT DEP active and seeking secondary treatment at municipal STP's and the equivalent of BPT or BAT at industries discharging to either surface waters or sanitary sewers (i.e., pretreatment).
- Federal CWA amendments passed and subsequent program grants and federal requirements stimulated major expansion of CT DEP.

1973 - NPDES delegation received.
- The second Water Quality Standards revision process initiated.
- Water Quality limited segments designated, TMDL/WLA analyses begun.
- Ambient WQ Monitoring Program totally re-designed and implemented.
- State discharge permit requirements established for new sanitary landfills.

1974 - Bulk of NPDES permits issued.
- Ambient Biological Monitoring Program initiated.
- First major municipal 201 grant award for CSO correction (Norwalk).

1975 - Adoption of CT's Civil Penalty Program.
- Began requiring State discharge permits for large septic systems-system designs based on sanitary and hydraulic engineering principals versus "code requirements".
- Implemented first WLA's.
- Initiated Agricultural Waste Management activities.

1976- Expanded Lakes Management activities-monitoring and assessment.
- Initial 208 grant received and studies begun on groundwater protection and NPS Management needs.
- First 201 grant award for AT construction project (Plainville STP) based on WLA process.

1977 - First major eutrophication study completed to set PO_4 removal requirements for discharges into the Housatonic River impoundments.

1979 - Second round NPDES permits issued.
- Statewide Pretreatment Program submitted to EPA for approval.
- First 314 Lakes restoration grant award (Lake Waramaug).
- Delegated administration of Federal 201 construction grants.
- State/EPA working group formed to deal more effectively with interstate transport of water pollutants.

1980 - Major revision to CT's WQS system was accomplished following public hearings which resulted in a statewide groundwater classification system to serve as the basis for a comprehensive and coordinated ground/surface water quality management program.
- Completed trophic classification inventory of recreational lakes.

1981 - Initiated Public Hearings for specific groundwater classifications and fourth revision of surface specific water classifications.
- Adopted lakes management priority list for 314 grants.
- Major approval by Governor of 208 NPS plan.
- Statewide Pretreatment Program approved by EPA.
- Toxic WLA's planning and monitoring increased.
- Enforcement and permit policies and priorities for groundwater discharges were substantially refined.

1982 - Toxicity testing capabilities were developed in DEP's aquatic biology laboratory.
- Major new approach designed for developing comprehensive WQM plans.
- Adopted groundwater monitoring strategy for existing sanitary landfills.
- Major state legislation passed regarding: diversion permits for surface and groundwater allocation; underground fuel storage; orders to polluters to provide alternate water supply; grants to municipalities required to provide alternate water supply; permit fees.
- Adopted Groundwater classifications for approximately 50% of State.
- Developed strategy with EPA regarding third round NPDES permits.

VI. SITE-SPECIFIC SUCCESSES

A. Connecticut Pretreatment Program

In 1972 a statewide comprehensive pretreatment program was implemented by the Department of Environmental Protection. Point sources of pollution to streams had been stringently controlled since the passage of the Connecticut Clean Water Act on May 1, 1967. With the beginning of the NPDES Program it was obvious that the Water Pollution Control Program would be incomplete without controlling these point sources of pollution that discharged to municipal sewerage systems. Beginning in 1972, industrial discharges to municipal systems were surveyed and those discharging incompatible materials such as acids, heavy metals, cyanide and solvents (approximately 400) and those discharging compatible materials such as dye waste, and paper waste in excessive quantities (approximately 25) were issued orders to install new treatment facilities or renovate existing facilities. To date the Program has been highly successful and with a few exceptions, industrial discharges to sewers now receive the same treatment as if they were to discharge to a surface water. This has eliminated huge quantities of toxics that might have otherwise gone untreated, helped municipal treatment plants to operate more efficienty and eliminated an inherent competitive advantage that had existed within Connecticut.

B. Connecticut Ground Water Management Program

Realizing that a truly comprehensive water quality management program must include groundwater, Connecticut revised and adopted its Water Quality Standards and Criteria on September 9, 1980. These standards for the first time included a use classification system for groundwater that paralleled the existing surface water classification system. In part a reaction to groundwater pollution cases, the primary intent of the Program is to protect valuable groundwater resources for present and future drinking water supplies. The necessity for waste disposal is recognized and a groundwater classification allowing waste disposal with the proper handling and treatment is provided for certain very limited areas demonstrating specific hydrogeologic conditions. The siting of new sanitary landfills and the placement of industrial residuals as well as many other activities will be strictly regulated by this system. Watersheds for public water supply reservoirs and recharge areas for water supply wells are eliminated for consideration of most types of waste disposal. The system is supported by a statewide resource data base including geological information developed jointly by the Connecticut DEP and the USGS.

In addition to the classification system, Connecticut has just passed and is now implementing a Water Diversion Program, its purpose being allocation of water resources including groundwater. Underground fuel storage regulations are addressing problems related to petroleum product leakage. A variety of other measures are also being implemented to address groundwater contamination problems.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Combined Sewer Overflows - CSO's are one of the most significant problems remaining. All CSO municipalities are under administrative order to correct problems. Most communities have completed comprehensive facility plans and several have begun a phased construction program. Continuing federal and state grants are necessary to complete the program.

Pretreatment - Connecticut has developed its own ongoing program based on treatment technology which has been highly successful.

Groundwater - Responding to a critical need, Conecticut adopted and is implementing a statewide groundwater policy and use classification.

Part B. Major Remaining Problems:

____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

X - Groundwater resource quality protection or supply assurance.

X - Identification and control of toxic pollutants from industrial and non-point sources.

X - Municipal wastewater plant operation, maintenance, and rehabilitation.

____ - Pollution arising from abandoned industrial and/or mining facilities.

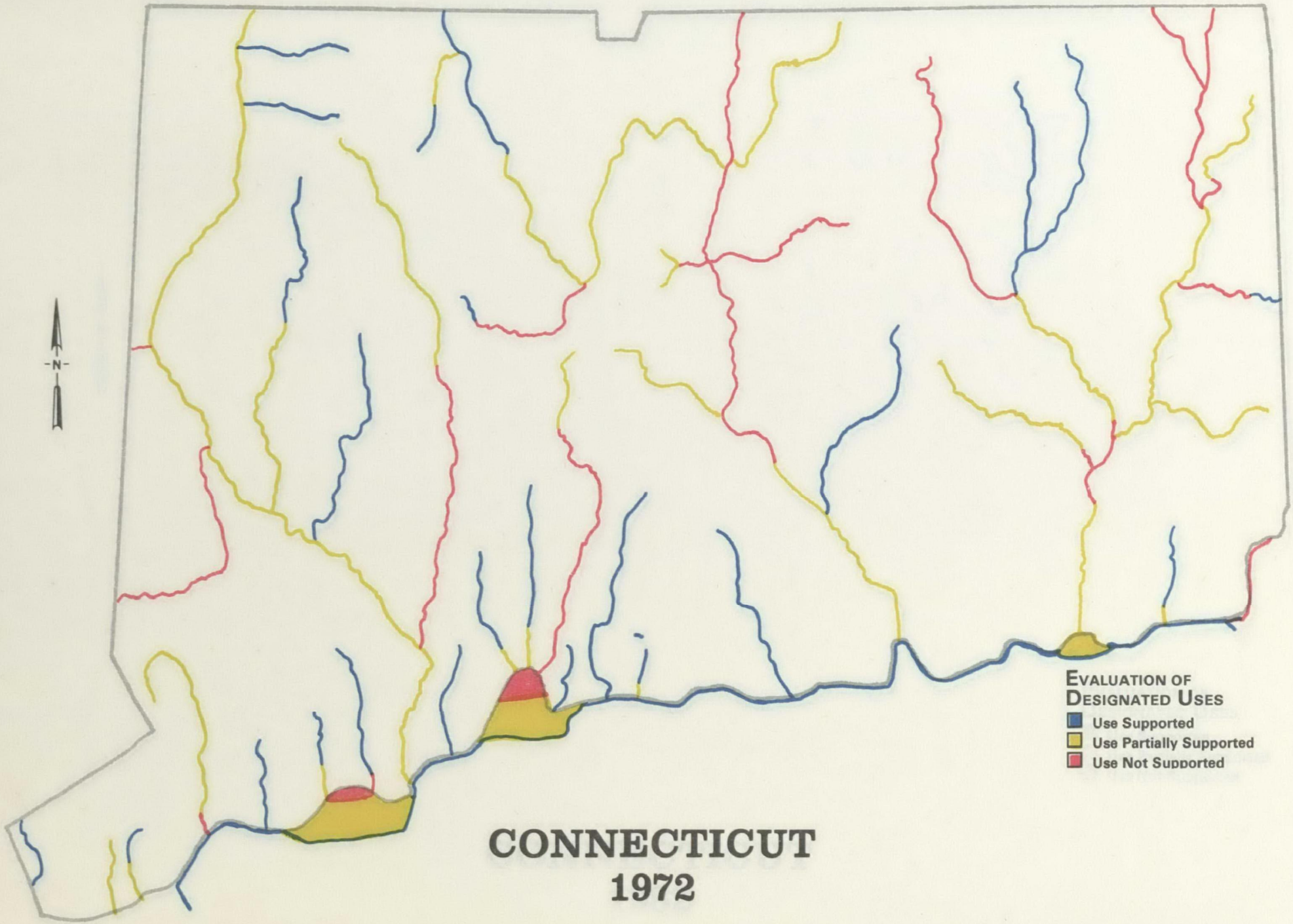
One of the most serious and far reaching problems remaining is the assessment of toxic materials on human health. While impacts on aquatic life are becoming understood, impacts on human health remain a mystery. More and more public attention is focused on possible human health effects from permitted discharges containing trace amounts of toxic materials. Although the states can assume delegation of programs and do site specific evaluations of aquatic life, human health is too complex and costly for anyone other than the Federal government. To make proper decisions that protect human health, it is imperative that the Federal government take an agressive lead role in funding and/or taking part in necessary research, toxicological studies and epidemiological surveys to consolidate existing information and develop meaningful human risk factors for a wide variety of toxic compounds.

AGENCY PREPARING REPORT: Department of Environmental Protection

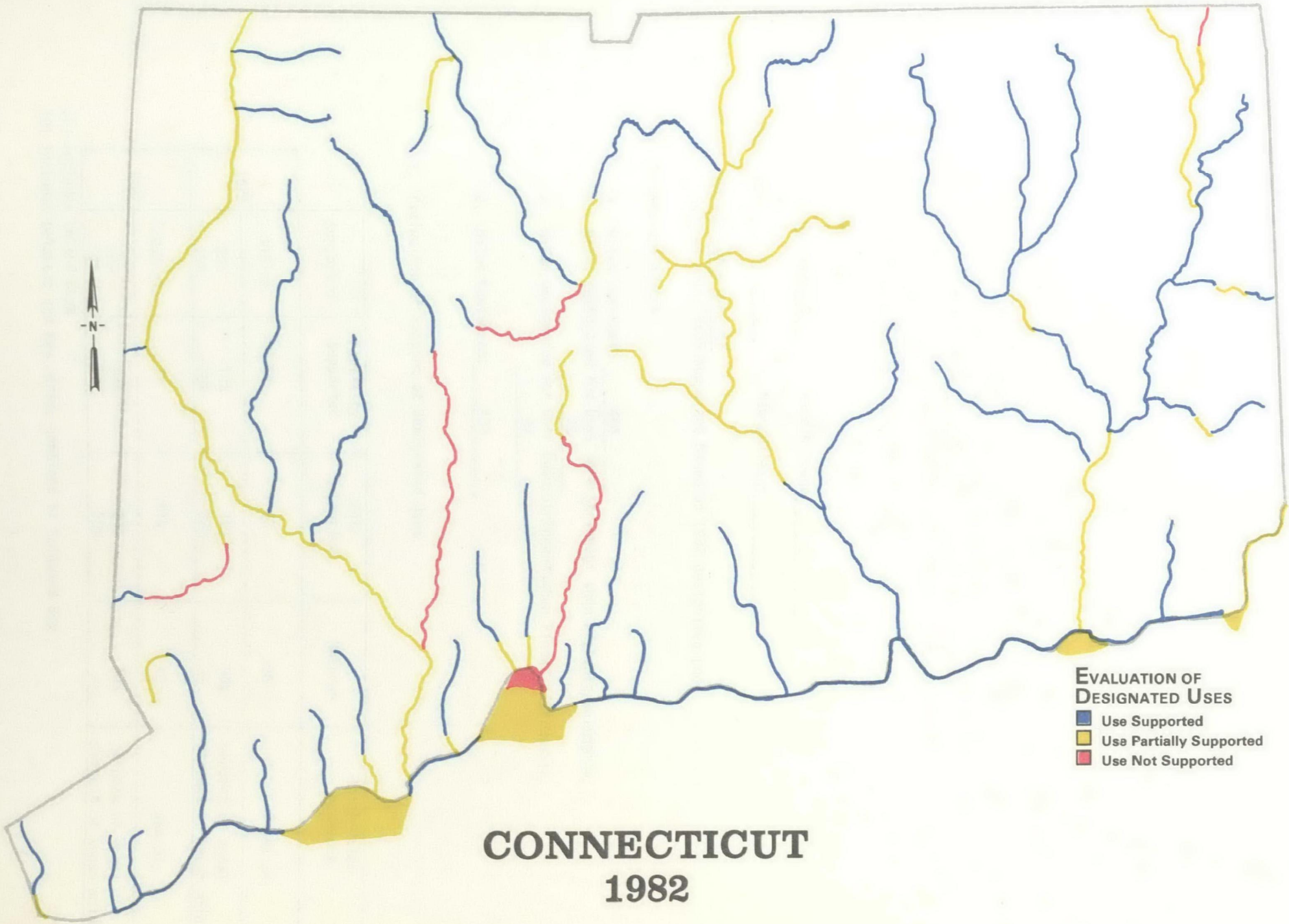
Water Compliance Unit

CONTACT PERSON & PHONE #: Robert E. Moore (203) 566-3245

DATE: August 9, 1983



CONNECTICUT
1972



CONNECTICUT
1982

State of Delaware*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 548,104 1980 594,338
State Surface Area 2,057 sq. miles
# of River Systems/Basins 31.0
# of River and Stream Miles 464 mi.; # of Border Miles* 79 mi.
# of Lakes and Ponds and Acreage 20 / 1,160 ac.
# of Marsh or Wetlands ac./sq.mi. 106,000 ac. or 166 sq. mi.
# of Coast Miles 381 (1) mi.
# of Estuary sq. mi. 720 (2) sq. mi.

*Border Rivers:

Name/Mileage Delaware/79 Name/Mileage

Name/Mileage Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 464
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 45
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 37
   d. Miles Monitored: 431

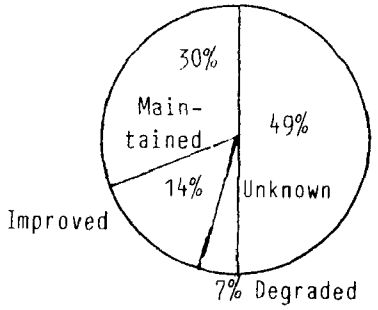
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	116 mi.	67	53	228	464 mi.
	25%	14%	11%	50%	percent of total
	49%	28%	22%	--	percent of known miles
1982	237 mi.	71	111	45	464 mi.
	51%	15%	24%	10%	percent of total
	57%	17%	26%	--	percent of known miles

(1) includes Inland Bays
(2) includes Delaware and New Jersey portions of Delaware Bay

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	58	5
Miles Degraded:	30	3
Miles Maintained:	140	
Unknown:	228	

B. Lakes and Reservoirs

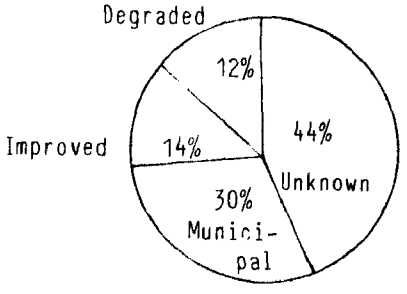
1. a. Acres Assessed: 1,160
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 1,160

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	242 ac.	375	35	508	1,160 ac.
	21	32	3	44	100%
1982	690 ac.	470	0	0	1,160 ac.
	59	41	0	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

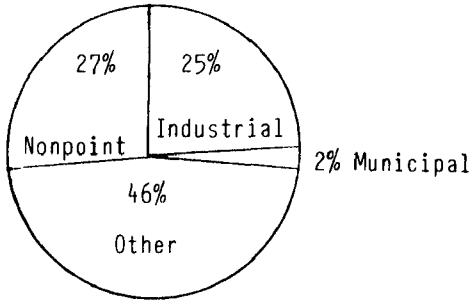


	Within Category	Change in Category
Acres Improved:	0	158
Acres Degraded:	0	150
Acres Maintained:	344	
Unknown:	508	

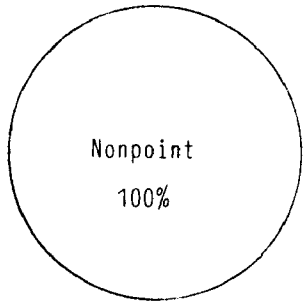
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

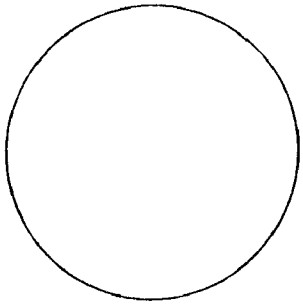
a. Streams and Rivers



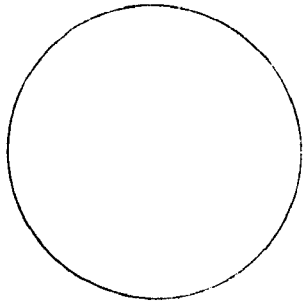
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			D.O. Nut.
Industrial	X	X	X			X			D.O. Toxics
Non-Point	X	X	X						Coli. Nut.
Other (inc. natural)	X	X	X						Coli. D.O.

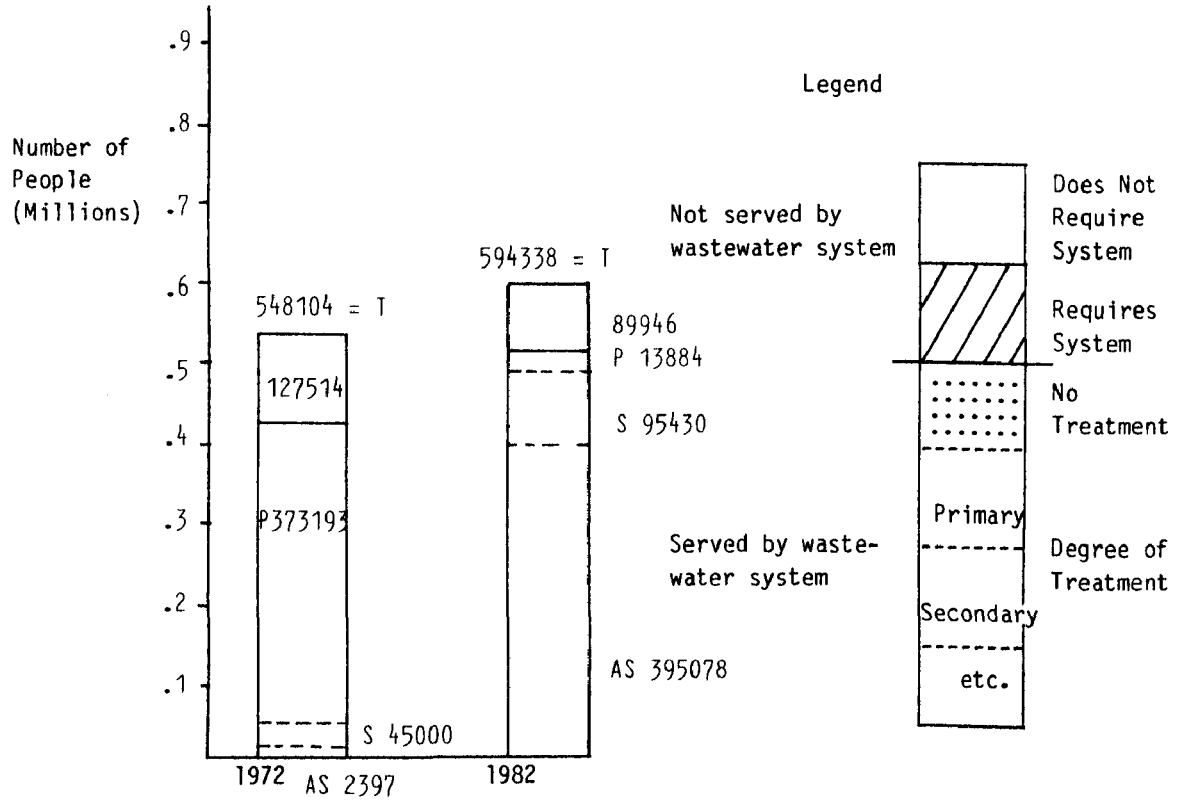
*Number of Stream/River Miles Affected by Toxics: 25
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

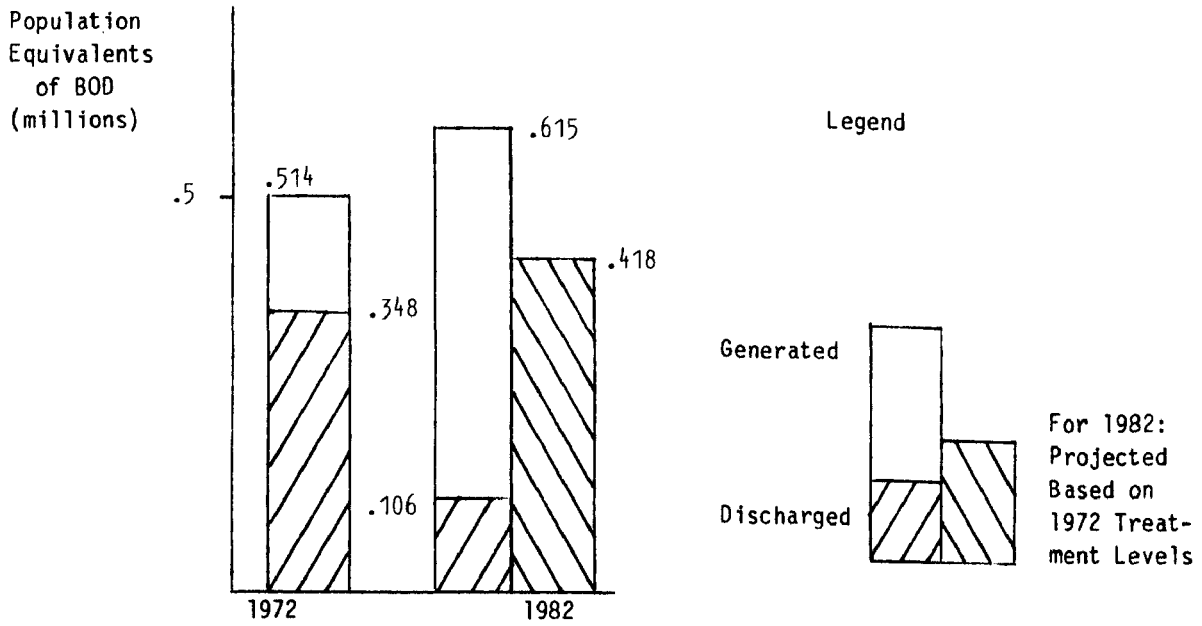
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections[+]



[+]Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

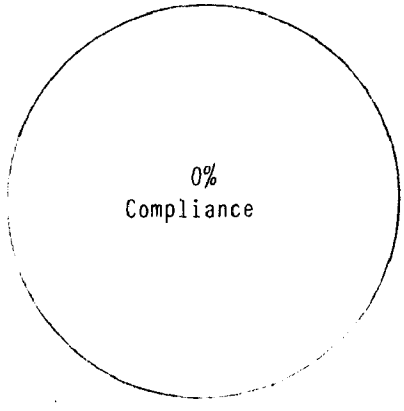
a.

	1972	1982 Interim Permits*	1982 Final Permits	
Facilities with Permits	2	1	3	
Facilities Meeting 1982 Permit Requirements+	0	1	2	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	0	100	66.7	
Percentage of Flow For Which Requirements Met+	0	100	86	
Facilities Needing Upgrading	2	1	1	4

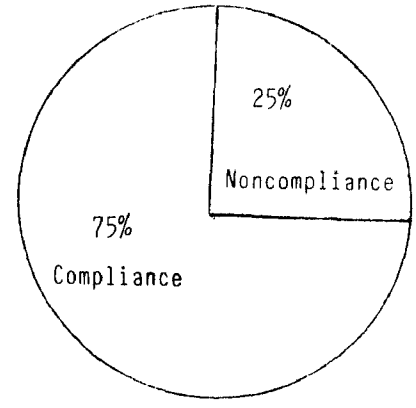
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

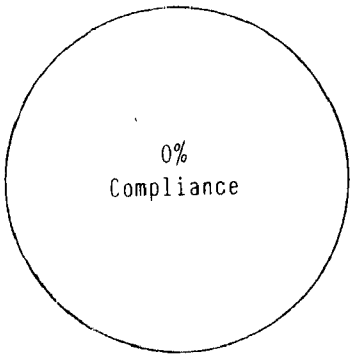
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	26	2	24	
Facilities Meeting 1982 Permit Requirements+	0	0	22	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	0	0	91.7	
Percentage of Flow for Which Requirements Met+	0	0	99	26

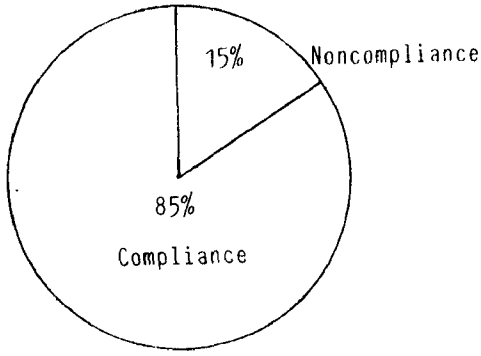
+Includes "No-Discharge" Facilities
*Interim Permits Include Consent Orders

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The Clean Lakes and the "208" Water Quality Management Program have identified several non-point sources of pollution concluding that 1) most of Delaware's lakes and ponds are eutrophic; 2) the groundwater in parts of the state is contaminated with unhealthy levels of nitrate-nitrogen; 3) the highest nitrate concentrations occur where there is excessively well-drained soils and intensive agricultural production; 4) poultry manure, landfills, septic tanks and fertilizers are the main sources of nitrate contamination in the water table; 5) soil type is the major factor in determining whether stormwater runs off into a stream, or percolates into the water table.

The nonpoint sources of pollution (both man-made and natural) have resulted in several water bodies not meeting their designated uses as prescribed in the state's water quality standards. Much of the state's shellfishing grounds are presently closed due to high levels of coliform bacteria. Primary and secondary contact recreation is restricted or hindered in some areas. Salt water intrusion in the coastal region has affected part of the water table aquifer and precluded its future use.

The state's strategy toward controlling nonpoint source pollution is multifaceted. Owners of failing septic tank systems can be arrested, fined and forced to effect repairs. New, updated septic system regulations are being proposed to prevent such problems in the future. The state has helped fund an environmental specialist position in the Cooperative Extension Service to teach farmers and rural residents the best methods of disposing of their household and farming wastewater. The specialist has saved farmers thousands of dollars on fertilizer bills by showing them how to apply best management practices for fertilizer and manure management which simultaneously help safeguard ground water quality. The state will also use the experience gained from the Rural Clean Water Program in the Appoquinimink River Basin to reduce agricultural nonpoint source pollution. The state has also proposed new cost sharing best management practices for the storage and disposal of animal wastes. Regultions concerning agricultural practices and solid waste disposal will be reviewed in the years ahead.

The presence of toxic materials in Delaware streams and ponds is rare, although small fish kills do occasionally occur - usually in farm ponds after a heavy rain due to toxophene in the sediment. In recent years, the state has initiated a sediment and erosion law to reduce sediment runoff from most land distrubing activities, except flatland agriculture.

The state has recently completed a comprehensive water management plan. Much of this plan deals with groundwater and its management. The various nonpoint source pollution threats to the state's groundwater resources are addressed in a special report.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/W	N/A	N/A	M/L	N/A	M/W	S/W
Primary Pollutants	T,M,C Nut.OXDE	Nut,OXDE C & SS	-	-	SS	-	SAL.	NUT M, SS

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Responsibilty for compliance with permit terms and conditions rests with the permit holder. The self monitoring data as well as DEC monitoring and non-compliance notification provide an adequate base from which the permit holder can determine his compliance status. Industrial violators not having adequate treatment facilities are subject to a penalty policy designed to match penalities with the unfair economic benefit otherwise realized by non-compliance, thus removing the economic incentive for non-compliance. Increasingly, the emphasis is shifting to adequate operations and maintenance of existing treatment works with penalty determinations made by DEC in accordance with the Delaware Environmental Protection Act.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

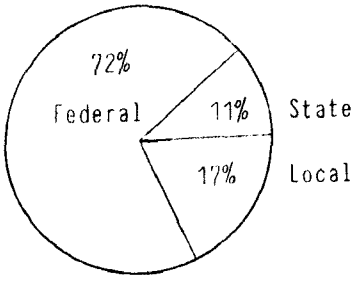
Total Number of Facilities:	5
Number of Pre-Administrative Actions:	3
Number of Administrative Actions:	2
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 295.3 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 213.4 Million
Other Federal:	$
State:	$ 33
Local Match:	$ 48.9
Other Local:	$

C. Program Activities

Approximately the first half of the 1972 decade was devoted almost exclusively to the control of point source pollution. A strong construction grants management program and National Pollutant Discharge Elimination System (NPDES) program (delegation received in 1974) were the major thrusts of Delaware's overall water quality management program for this period.

In the mid and latter part of the decade, two areawide and the state's water quality management planning (208) programs, a wastewater treatment plant operator training and certification program and a clean lakes program complemented the point source orientation and provided a balance between point source and non-point source pollution control. Other programs in support of the state's overall water quality program include programs in compliance assurance, enforcement, laboratory and ambient field and public participation.

As the reporting decade drew to a close, Delaware found itself in an enviable position compared to most states in that only two communities with populations over 500 are not either sewered or have a grant for doing so. Of the 18 municipal sewage treatment plants in the state, only two have not been upgraded to secondary treatment. Both of those communities are now in the design phase for upgrading.

Current emphasis in Deleware's water quality program is placed on groundwater quality protection (see part VII: Special State Concerns). The state's groundwater quality program is a very comprehensive one, interfaced with the state's solid and hazardous wastes, superfund, septic system and agricultural nonpoint source control programs and involves participation by both government and the private sector.

VI. SITE-SPECIFIC SUCCESSES

Scope of Wastewater Facilities Development

Forty out of Delaware's 56 incorporated municipalities are either sewered or have a grant for doing so. Only two of the remaining 16 have populations over 500. Today only two municipalities do not have treatment works capable of providing secondary treatment. Both of those communities are now in the design phase for upgrading with construction to begin in 1984.

Nutrient Management

Delaware has implemented a nutrient management program, designed to save the farmer expensive fertilizer costs and at the same time improve surface and groundwater quality. Utilizing the services of the University of Delaware's Cooperative Extension Service to implement the program, the State has managed to save a number of farmers considerable sums of money during 1982.

This voluntary approach to nonpoint source pollution control is highly successful and fully endorsed by the state's agriculture communities.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Groundwater Quality

Groundwater in Delaware is a high quality, low cost and available source of water which provides more than 19 billion gallons each year for all uses. Approximately two-thirds of the state's population uses groundwater provided through municipal and private wells. All of the fresh water for farm use and most of the water used for irrigation and self-supplied industrial use is also derived from groundwater. Groundwater is readily available in the Coastal Plain of Delaware where streams are inadequate to meet demand, are typically saline, or have highly variable seasonal flow. Groundwater also provides base flow to streams and thus is responsible for the maintenance of a fish and wildlife population and aquatic ecosystems. Since these ecosystems often require water of a quality even higher than drinking water, the obligation to protect wildlife also demands the maintenance of groundwater quality. There is evidence of groundwater contamination in Delaware sufficient to convince many that the subject requires serious attention in public policy. The extent of contamination, however, cannot be stated in scientifically meaningful terms at this time. In those parts of the state where groundwater is used excessively or where it can be so contaminated that it is unfit for consumption, serious local economic problems can result. Revision of the state's water pollution control regulations, the implementation of Superfund to address the state's six qualifying superfund sites, the introduction of best management practices to address pollution that can occur from improperly disposed animal wastes are among major programs underway to deal with the problem of groundwater quality.

Inland Bays Development

Residential growth in the Inland Bays region of Delaware has been sustained over the past decade and even during the current period of deep national economic recession. In the future, continued growth at past trend rates (43 percent per decade) would add an additional 10,000 or more housing units by the year 2000, involving close to $500 million in property development and real estate transactions. This strong local economy, however, is based on a fragile, deteriorating ecological system that is vulnerable to uncontrolled growth. Findings of previous studies indicate that continued use of conventional on-site wastewater treatment systems in areas of high water table and rapid percolation rates (frequently found in the area) could result in contaminated groundwater supplies, and in areas with low percolation rates could result in surface water quality contamination. Ultimately, these deteriorating environmental conditions could undermine the fragile ecological basis of the economy.

Part B. Major Remaining Problems:

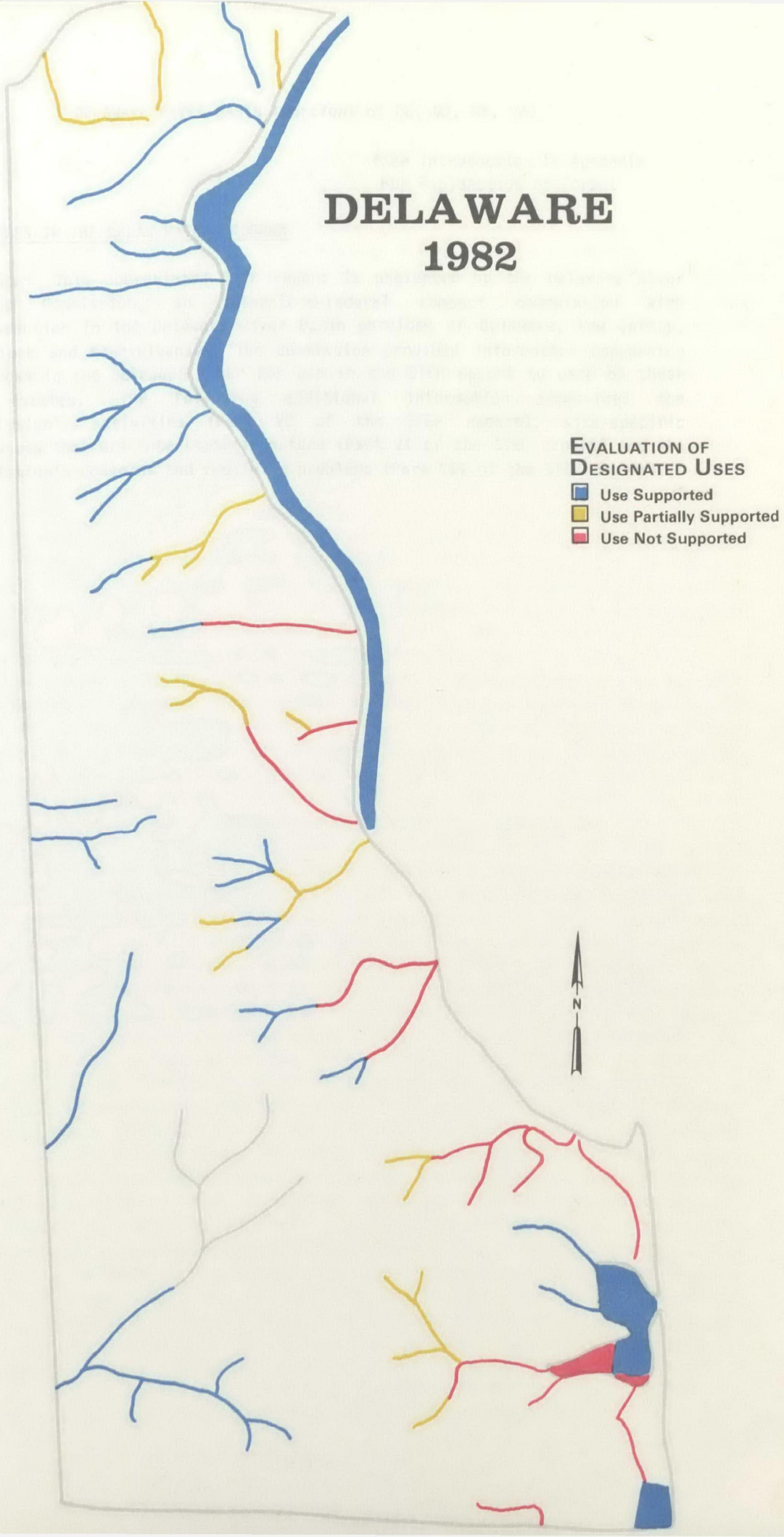
- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
____ sources.
____ - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Delaware Division of Environmental Control

CONTACT PERSON & PHONE #: Robert H. MacPherson 302/736-4860

DATE: August 19, 1983

DELAWARE
1982



DELAWARE RIVER BASIN (portions of DE, NJ, NY, PA)

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

Preface: This abbreviated STEP report is presented by the Delaware River Basins Commission, an interstate-federal compact commmission with jurisdiction in the Delaware River Basin portions of Delaware, New Jersey, New York and Pennsylvania. The Commission provided information concerning progress in the Delaware River for use in the STEP report to each of these four states. The following additional information summarizes the Commission's activities (Part VC of the STEP report), site-specific successes that are interstate in nature (Part VI of the STEP report) and the Commission's concerns and remaining problems (Part VII of the STEP report).

C. Program Activities

WATER QUALITY MONITORING AND DATA ANALYSES

The Commission operates a cooperative sampling program covering 100 miles of the Delaware Bay and tidal Delaware River (DE, NJ & PA). Generally, samples are collected by boat twenty times per year at eighteen locations by the State of Delaware under contract, and analyzed for up to 25 parameters. The program has been modified at times to conduct special studies. Monitoring of major tributaries and waste dischargers is similarly contracted to the States of Delaware, New Jersey and Pennsylvania. The Commission coordinates the National Ambient Water Monitoring Program for the Delaware River including the collection of fish tissue for toxic compounds and provides funding for automatic water quality monitors that operate in the Delaware and Lehigh Rivers.

In the upper Delaware River the Commission conducts annual summer limnological studies that emphasize biological sanitary water quality parameters. In recent years this program has directed attention to water quality issues related to the management of river segments designated as National Scenic and Recreational Rivers.

Water quality data are analyzed by the Commission for trends, attainment of water quality standards and for answers to specific technical questions. Biannually the Commission publishes a water quality status and trend report. The Commission serves as a source of water quality information for the general public and handles numerous requests for information each year.

WATER QUALITY MANAGEMENT AND PLANNING

Water quality management including groundwater is an integral part of the Commission Comprehensive Plan for water resources management. Pollution abatement and related projects and plans developed by public and private entities are reviewed for consistency with the Commission's Plan. Specified water resources-related projects in the Basin must be submitted for Commission approval. Commission staff provide technical and policy advice through participation in the planning activities of local, regional, state and federal agencies.

The Commission has specific water quality planning responsibilities; for example, in the tidal Delaware River the Commission maintains a wasteload allocation program which assigns pollution loadings to individual wastewater dischargers. An on-going study is examining the necessity and costs for updating the wasteload allocation program, including abatement of non-point sources of pollution and the reevaluation of stream water quality objectives. As part of its Comprehensive Plan the Commission has adopted water quality standards for the interstate Delaware River. With the four Basin states and the federal government, the Commission periodically reviews and modifies, as necessary, its standards and effluent limits. The Commission maintains various mathematical water quality models of the Delaware River for management purposes.

VI. SITE-SPECIFIC SUCCESSES

TIDAL DELAWARE RIVER

The 85-mile tidal reach of the Delaware River passing through the urban-industrial complex of Trenton, NJ; Philadelphia, PA; Camden, NJ; and Wilmington DE (population: 5 million) receives wastes from more than 90 municipal and industrial dischargers. In the 1940s areas of zero dissolved oxygen were widespread, greases, oils and other substances floated in the river and associated noxious gases sickened dock workers, corroded ship hulls and caused other problems. The provision of primary wastewater treatment followed by secondary treatment above Philadelphia, after WWII, cleared up the more grossly polluted conditions.

In 1968 the Delaware River Basin Commission upgraded water quality standards and adopted a wasteload allocation program covering the major dischargers. As a result of this program and the coordinated programs of the federal government, and the states of Delaware, New Jersey, and Pennsylvania, further progress has been made. Pollution loadings have been reduced over 50% compared with the early 1960s with further reductions anticipated shortly as several large municipal upgrading projects are completed. The 85 miles of the tidal river now displays greatly improved water quality. Dissolved oxygen, for example, was increased one to 2.5 mg/l or more in over 70 miles of the Estuary. Other water quality parameters, particularly coliform bacteria concentrations, pH and acidity have also shown great improvement, and about 70% of the tidal river now generally meets water quality standards. In recent years urban parks have been developed along the waterfronts in each of the large cities, a direct benefit of cleaner water.

Water pollution in the tidal Delaware impacts the American Shad, an important anadromous fish that annually migrates to spawn in the Upper Delaware River Basin. Catches of shad peaked around the turn of the century when the Delaware River catch was the largest of any river system along the Atlantic Coast. Primarily due to pollution, shad populations declined drastically after 1901, to the point that shad commercial and sport fishing largely ceased up and down the Delaware. In recent years the shad have been making a dramatic come-back. Between 1975 and 1982, for example, population estimates show a four-fold increase, with record (post - WWII) shad runs in 1981 and 1982. Several shad festivals are now held annually along the Delaware River during the spring shad run and the shad sport fishery is estimated to have a annual value of $3 million.

UPPER DELAWARE RIVER BASIN

New York City has three large water supply reservoirs in the Upper Delaware River Basin, releases from which are governed by a 1954 U.S. Supreme Court decree and New York State law. The permitted method of releases from the three reservoirs was causing water quality problems in the rivers below the reservoirs, particularly in the West Branch Delaware River. Nine miles of the West Branch forms the Pennsylvania - New York State border. There the river was subjected to minimum flow, high temperature conditions during the summer months with periodic large flow increases due to cold-water reservoir releases. The resultant thermal stresses and varible flows were harmful to fish life and other recreational uses of the river. Accordingly, modified operating procedures were developed, and in 1977 the four Delaware River Basin states and New York City, under the auspicies of the Commission, cooperatively agreed to an experimental modified release program. The results of the program have been dramatic. Thermal stresses conditions have been eliminated on the West Branch Delaware River and reduced on the Neversink River and East Branch about 75%. Up to 35.5 stream miles have been converted to high quality trout water and an additional 50 miles of trout fisheries receive better protection as a result of the improved environmental-habitat conditions. Native Brook trout have returned to the East Branch and the ranges of other trout species extended into new areas. Improvements were also achieved for warmer water fish as well since base flows have been stabalized and habitat areas increased.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Progress by some municipal dischargers in meeting wasteload allocations for the tidal Delaware has been slow, due to federally-mandated detailed planning requirements, limitations on construction grant funding, and local resistance to regionalization of facilities.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_X_ - Identification and control of toxic pollutants from industrial and non-point sources.

_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_X_ - Pollution arising from abandoned industrial and/or mining facilities.

Non-point sources (particularly combined sewer overflow and sediment oxygen demand) must be controlled in order to progress toward the fishable swimmable water quality goals in the tidal Delaware. Control of toxic substances will require increased efforts to more clearly define sources, effects, ultimate fates and abatement measures.

Recreational users of the Upper Delaware River are increasing and in many river segments recreation is the dominant river use. The ultimate water quality impact of this intensive use is not known. Protection of high quality waters from recreation - related and other development in areas adjacent to the river or on tributary streams will be an on-going concern.

AGENCY PREPARING REPORT: Delaware River Basin Commission

West Trenton, N.J.

CONTACT PERSON & PHONE #: Richard C. Albert (609) 883-9500

DATE: July 20, 1983

State of District of Columbia*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 756,500 1980 638,300
State Surface Area 69 sq. miles
# of River Systems/Basins 1
# of River and Stream Miles 40 mi.; # of Border Miles* _____ mi.
# of Lakes and Ponds and Acreage 1 / 107 ac.
# of Marsh or Wetlands ac./sq.mi. 5 ac. or _____ sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 6.67 sq. mi.

*Border Rivers:

Name/Mileage _____ Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

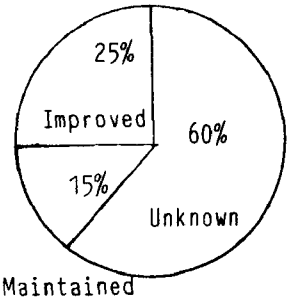
1. a. Miles Assessed: 40
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 40

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	6 mi.	9	6	19	40 mi.
	16 %	22%	15%	47%	100%
1982	7 mi.	18	10	5	40 mi.
	17 %	46%	25%	12%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	4	11
Miles Degraded:	-	
Miles Maintained:	6	
Unknown:	19	

B. Lakes and Reservoirs

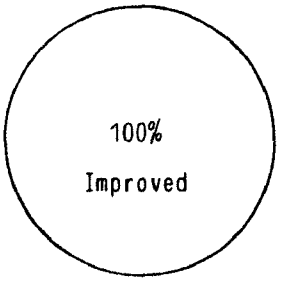
1. a. Acres Assessed: 107
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 107

2. Evaluation of Support of Designated Uses

		Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.			107		107 ac.
	%			100%		100%
1982	ac.		107			107 ac.
	%		100%			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		107
Acres Degraded:		
Acres Maintained:		
Unknown:		

C. Estuaries and/or Oceans

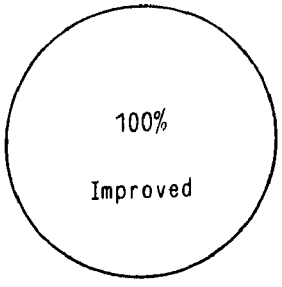
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	6.67	N/A
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0.42	N/A
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	N/A
	d. Sq. Mi./Miles Monitored:	6.67	N/A

2. Evaluation of Support of Designated Uses

		Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	sq. mi.			6.67		6.67 sq. mi.
	%			100%		100%
1982	sq. mi.		5.48	1.18		6.67 sq. mi.
	%		82%	18%		100%

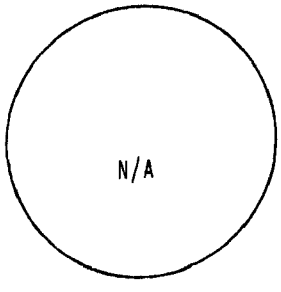
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	1.18	5.49
Sq.Mi.Degraded:		
Sq.Mi.Maintained:		
Unknown:		

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: N/A

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

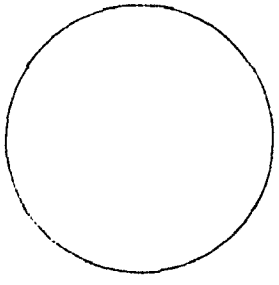
d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

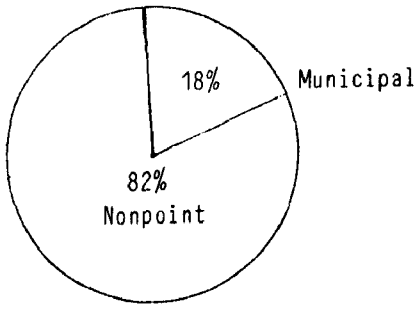


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

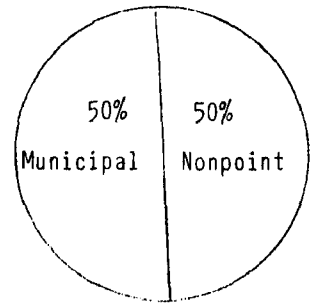
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

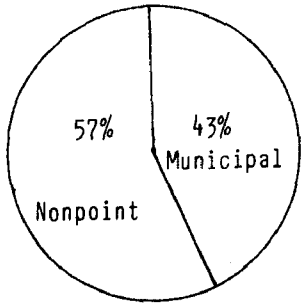
a. Streams and Rivers



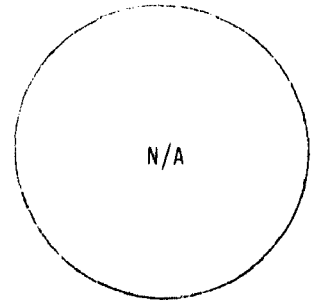
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli. D.O.
Industrial									
Non-Point	X		X				X		
Other (inc. natural)									

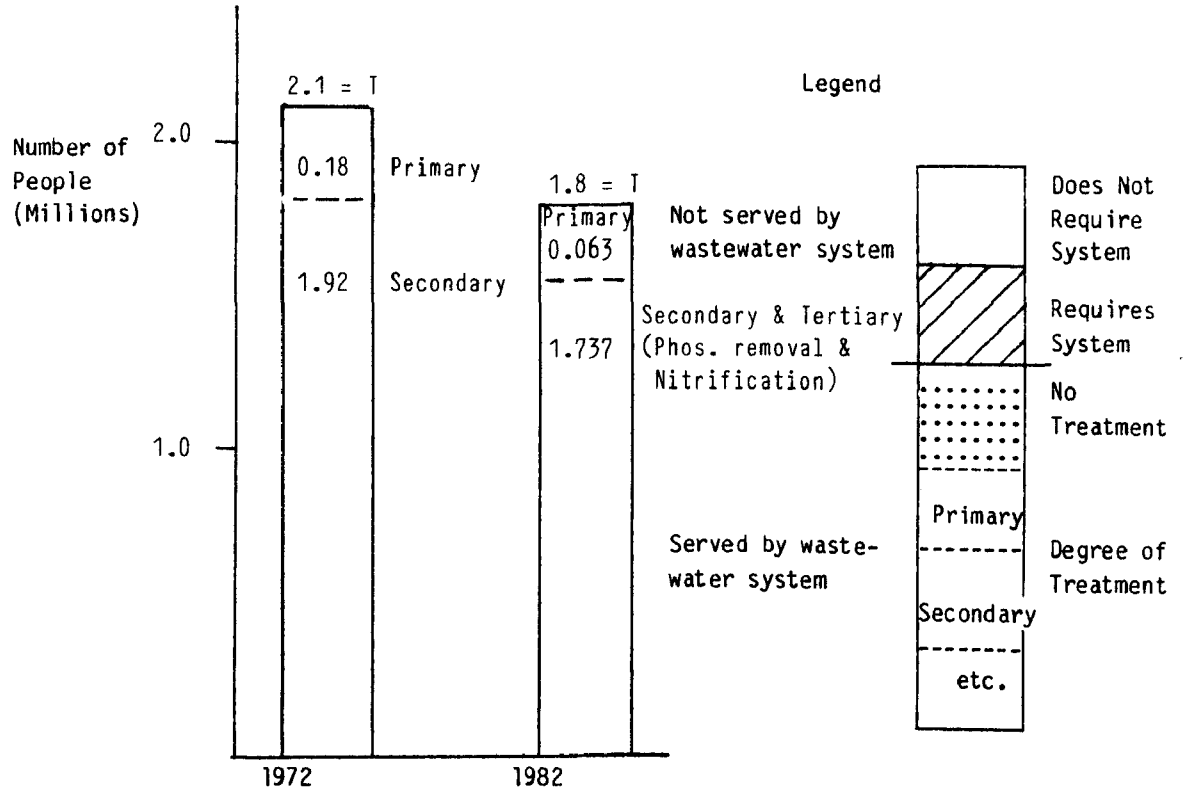
*Number of Stream/River Miles Affected by Toxics: _____
*Number of Lake/Reservoir Acres Affected by Toxics: _____
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

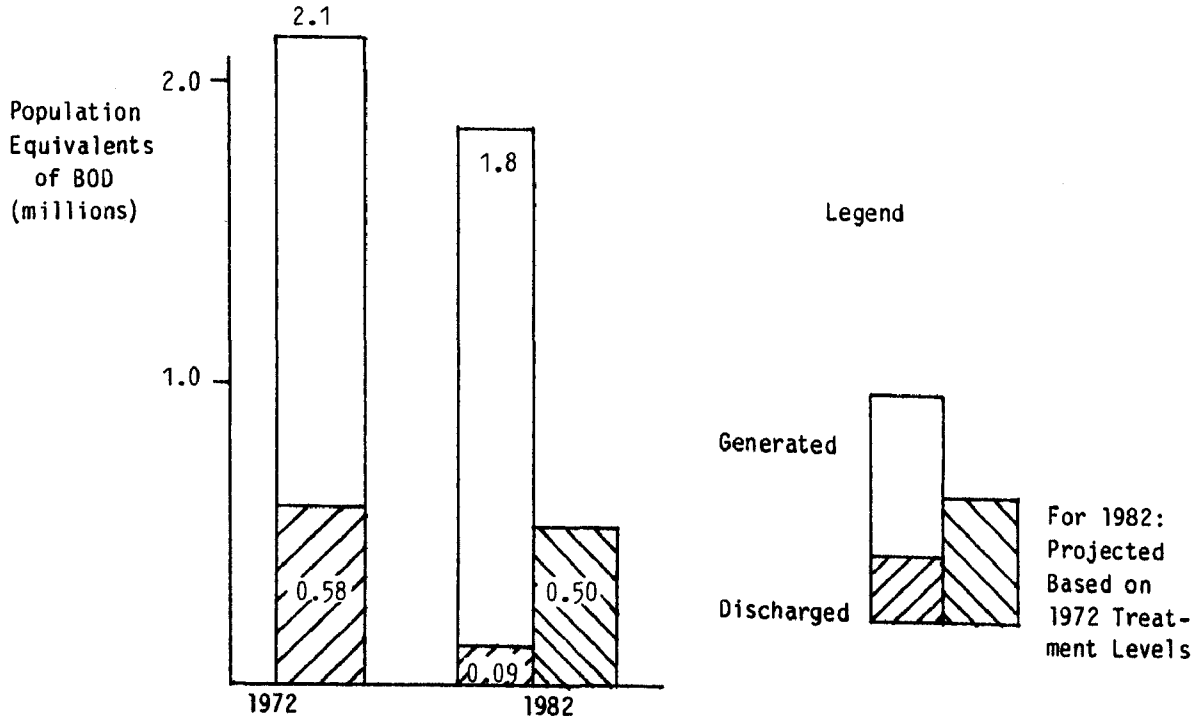
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

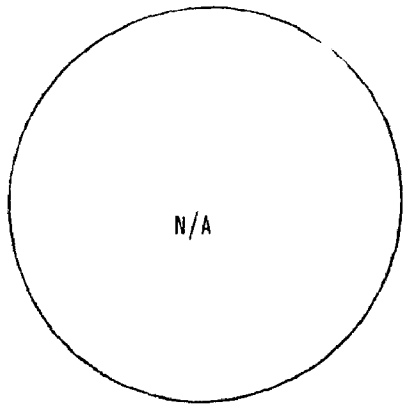
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	1	0	
Facilities Meeting 1982 Permit Requirements+	N/A	0	N/A	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	N/A	0	N/A	
Percentage of Flow For Which Requirements Met+	N/A	0	N/A	
Facilities Needing Upgrading	N/A	0	N/A	1

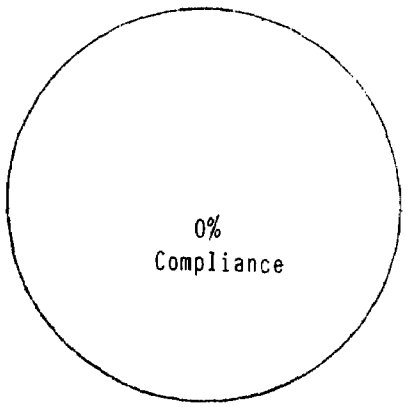
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

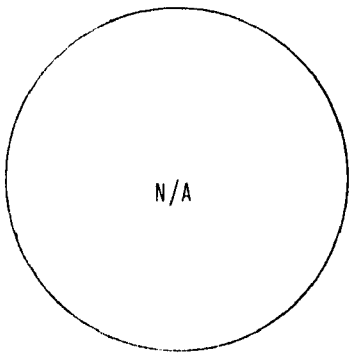
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	0	7	
Facilities Meeting 1982 Permit Requirements+	N/A	N/A	5	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	N/A	N/A	71.4	
Percentage of Flow for Which Requirements Met+	N/A	N/A	99.7%	12

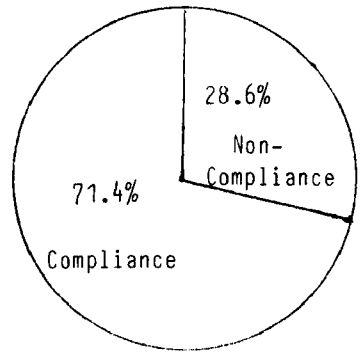
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/W	I/L	N/A	N/A	I/L		N/A	S/W
Primary Pollutants	C,SS, T. Oxde NVT	N,P			M,SS,			Sludge

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

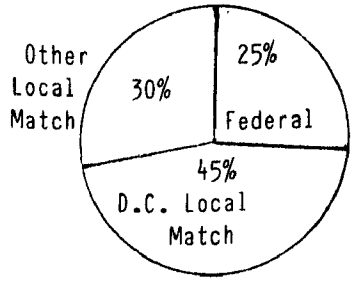
Total Number of Facilities: _____
Number of Pre-Administrative Actions: _____
Number of Administrative Actions: _____
Number of Judicial Actions: _____

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 520,474,124 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 133,133,048 Million
Other Federal:	$ 0
State:	$ 0
Local Match:	$ 231,970,038
Other Local:	$ 155,371,038

C. Program Activities

The Bureau of Water Quality Control performs four major functions in carrying out its Water Pollution Control mission:

Water Quality Monitoring: The District has been collecting data on the Potomac River since 1935, on Rock Creek since 1955, on the Anacostia River since 1968 and periodically on Watts Run, Oxon Run, Hickey Run and Battery Kemble Branch. However, the data were incomplete, uncoordinated, without standard operating procedures, apparently without a cause, and with neither data interpretation nor reports. In 1979 all data collection came under one program and reports have been prepared on data collected since 1977. The current program consists of the following elements.

Ambient Monitoring: Close interval sampling for electronic measures, full parameter stations at key and historical sites with intercalary stations for selected chemical analyses. Rock Creek has a dense network of stations and the other tributaries are sampled at one site monthly.

Biological Monitoring: Include annual aquatic vegatation survey, fish tissue analyses, fish stock survey, phytoplankton and zooplankton sampling, selected bentnic macroinvertebrate sampling, and periphyton sampling.

Special Surveys: Such as microbiological pathogen study and annual selected intensive tributary studies.

Reports: Consists of the biannual Water Quality assessment with alternate year updates.

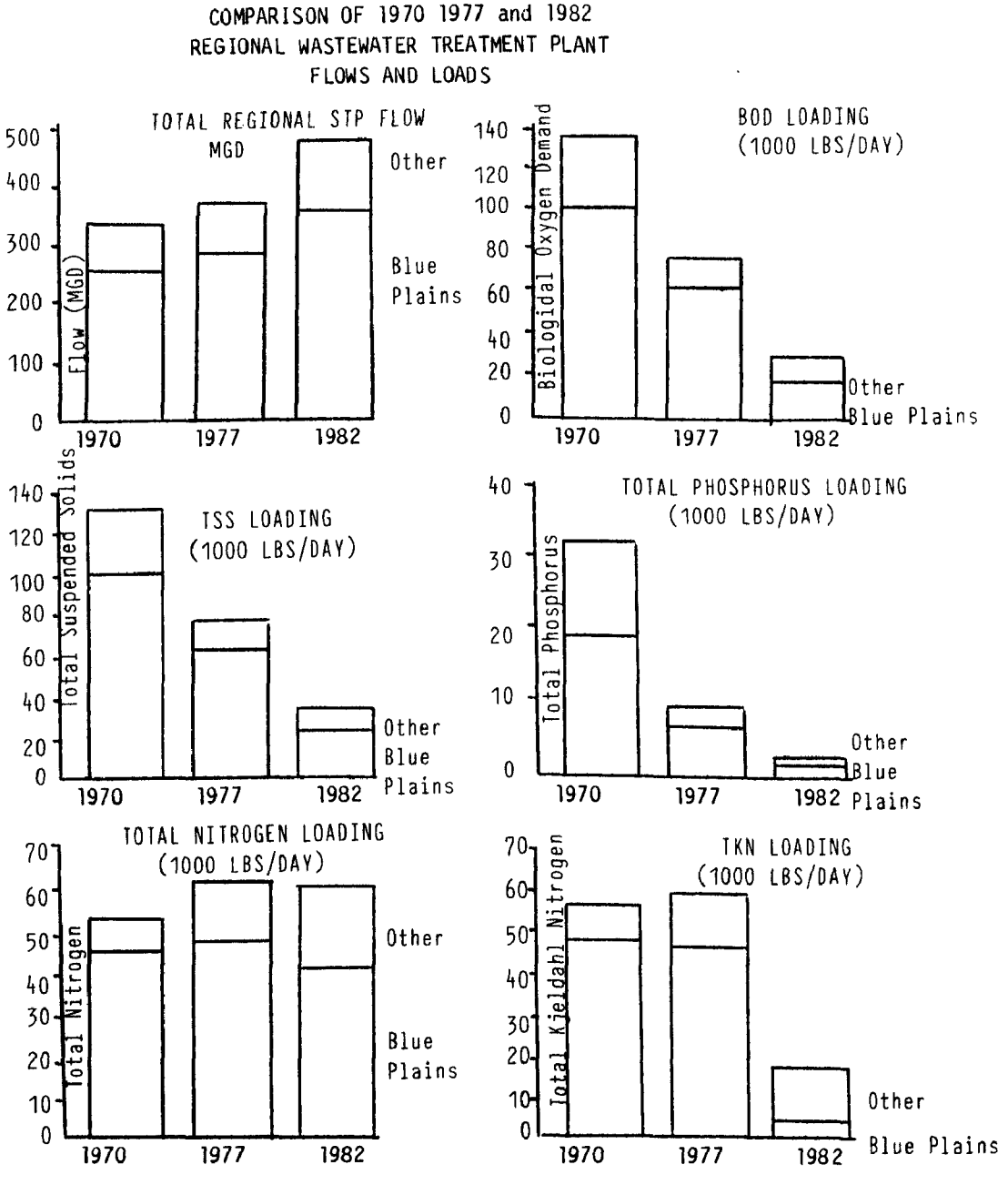
Permits: In 1972 this program was little more than a paper shuffle. Today, while the District does not have authority to issue National Pollution Discharge Elimination System permits, the Bureau performs all routine and violation inspections and, primary investigative work on draft permits, as well as tracking and following up on all violations. We are in the process of obtaining legal authority to enable EPA, at their discretion, to delegate to the District, authority to issue permits for discharge to District waters. The Dredge and Fill Program issues water quality certificates assuring that all such activities in navigable water meet best management practices designed to mitigate negative impacts on the waters. Final permits are issued by the Army Corps of Engineers. The Emergency Response Program is still in the development phase but a program is in operation which involves cooperation with the Coast Guard and D.C. Fire Departments as primary clean up agencies, as well as support from the D.C. Police Department, Hazardous Waste and Pesticide Program, and other environmental and public service agencies. The Bureau with the aid of the Mayors Command Center, act as the coordinator for this program.

Engineering: This Division primarily handles the Construction Grants Management Program. Before 1981 this program was little more than a rubber stamp for the Engineering and Construction Administration. Since then it has become a strong program, which consists of the following activities: development of the Construction Grants Priority List, involvement in planning phases of projects including reviews of plans and specifications change orders and grant requests. Engineering also assists the Bureau in evaluating waste treatment efficiencies for determining probable effluent quality, determining permit issuance and compliance, and evaluating the feasibility of alternative structural nonpoint source controls. The Bureau is currently seeking legislative authority to enable EPA, at their discretion, to delegate authority to issue and manage Construction Grants for District projects.

Planning: Prior to 1981 there was very little state level water pollution control planning in the District. Today the Planning Division provides general water pollution control planning which includes the Continuing Planning Process and water quality management plans that provide the underpinnings and direction to the Water Pollution Control Program. Other activities include writing the Water Pollution Control Status section of the Biannual Water Quality Assessment; developing and evaluating the annual work plan; participating in areawide planning activities, providing review, oversight, coordination and steering functions; overseeing and managing local universities and agencies funded under Construction Grants Planning [205(j)] monies, managing the Public Participation Program and reviewing environmental impact assessments.

VI. SITE-SPECIFIC SUCCESSES

The singular site specific success must be the extraordinary recovery of the Potomac River due to large capital and O&M expenditures on advanced wastewater treatment at Blue Plains and to a lesser extent the other sewage treatment plants. This effort resulted in great reduction in loadings discharged to the river as shown in this figure. As of this writing the Blue Plains TSS and BOD loadings have been considerably lowered (from those shown in the figure) as result of the start up the multimedia filtration operation. This effort coupled with the reduction of combined sewer overflow volumes has resulted in reduced fecal coliform levels and less frequent dissolved oxygen water quality standard violations.



VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Over the past decade we have made progress towards regional solutions to water quality problems as exemplified by the Potomac Strategy Process and water Supply Agreement. The District has made extraordinary progress in treating our wastewater which is shown by the improved Potomac River Water quality which now supports a growing fishery and potential for water contact recreation. The District has greatly reduced the combined sewer overflow problem in Rock Creek greatly improving its water quality and its impact on the Potomac as well. Recently, beginning in 1981 the District's water pollution control program has grown into a cohesive, efficient and influential "state" level operation.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of population
X and industrial growth.
X - Groundwater resource quality protection or supply assurance.
____ - Identification and control of toxic pollutants from industrial and non-point sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

There are several problems not listed in item 1. These problems include the continuing sludge disposal issue, which has been generated by improved wastewater treatment, and the need for expanded wastewater treatment as the result of regional population growth. We must also move forward with strategies to enhance the quality of the Anacostia River and the tributaries to our major rivers, especially Rock Creek, Hickey Run, Oxon Run and Watts Branch. These waters, except Hickey Run and Watts Branch, are regional problems which require a process similar to the Potomac Strategy. We need to develop our water pollution control regulations, including nonpoint source and stormwater management, needed to effectively manage our aquatic resources. We must continue the effort to eliminate the remaining combined sewer overflow problems, and finally, we must develop a fisheries management program to properly deal with this expanding resource.

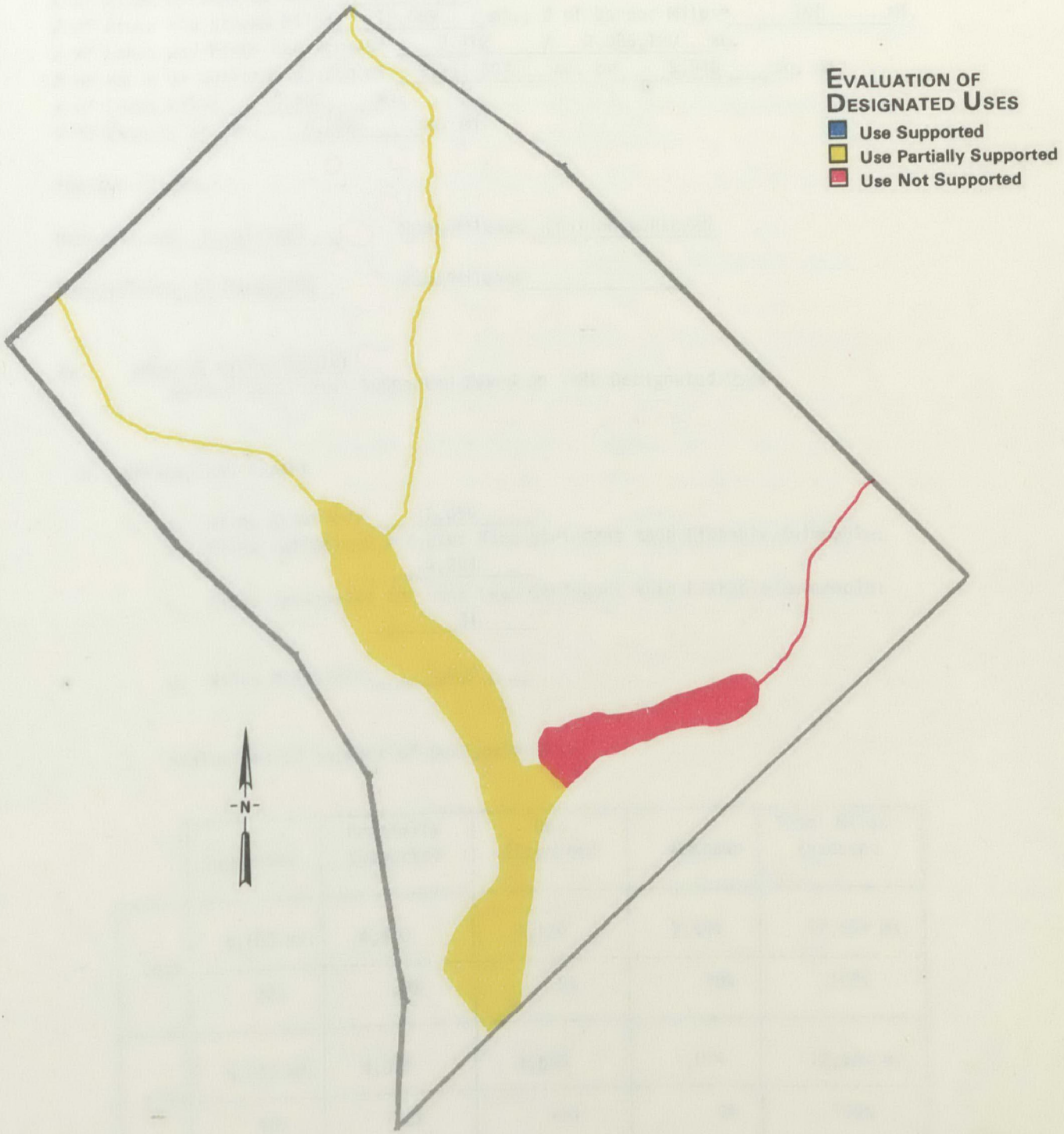
AGENCY PREPARING REPORT: District of Columbia
Department of Environmental Services

CONTACT PERSON & PHONE #: Robert S. Shippen (202) 767-7370

DATE: September 15, 1983

DISTRICT OF COLUMBIA
1972

DISTRICT OF COLUMBIA
1982



State of Florida*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 7 Million 1980 10.2 Million
State Surface Area 57,261 sq. miles
# of River Systems/Basins 14
# of River and Stream Miles 12,659 mi.; # of Border Miles* 191 mi.
# of Lakes and Ponds and Acreage 7,712 / 2,085,120 ac.
# of Marsh or Wetlands ac./sq.mi. 3,741,587 ac. or 5,846 sq. mi.
# of Coast Miles 8,460 mi.
# of Estuary sq. mi. 4,298 sq. mi.

*Border Rivers:

Name/Mileage Perdido/65 Name/Mileage Chattahoochee/26

Name/Mileage St Marys/100 Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

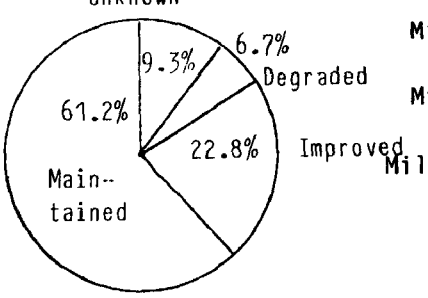
1. a. Miles Assessed: 12,659
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,294
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 31
   d. Miles Monitored: 2,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	4,105 mi.	4,910	1,120	2,524	12,659 mi.
	32%	39%	9%	20%	100%
1982	5,865 mi.	4,075	1,645	1,074	12,659 mi.
	46%	32%	13%	9%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	887	1,760
Miles Degraded:	250	525
Miles Maintained:	7,089	
Unknown:	1,074	

B. Lakes and Reservoirs

1. a. Acres Assessed: 741,337

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 452,362

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

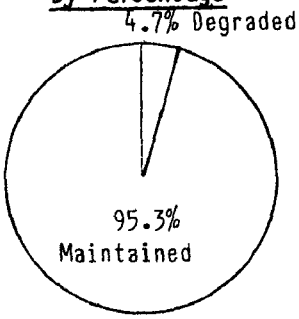
d. Acres Monitored: 600,239

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	623,114 ac.	72,730	45,493	---	741,337 ac.
	84%	9.8%	6.2%	---	100%
1982	604,304 ac.	75,035	61,998	---	741,337 ac.
	81.5%	10.1%	8.4%	---	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	0	35,315
Acres Maintained:	604,304	
Unknown:	0	

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	4,298	/ 4,277
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	4,298	/ 632
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	4,298	/ 0
	d. Sq. Mi./Miles Monitored:	4,298	/ 4,277

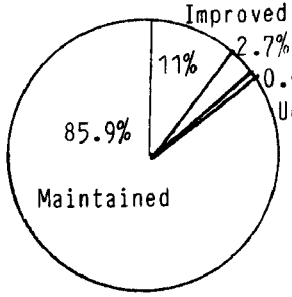
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	3,485	---	387	213	4,085
	85.3%	---	9.5%	5.2%	100%
1982	4,144	---	112	21	4,277
	96.9%	---	2.7%	0.4%	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

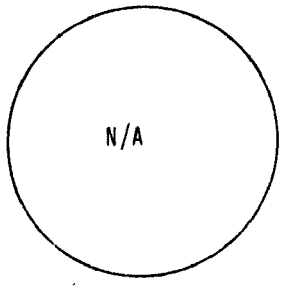
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	192	275
Sq.Mi.Degraded:	118	0
Sq.Mi.Maintained:	3,671	
Unknown:	21	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

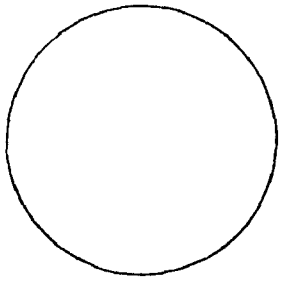
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

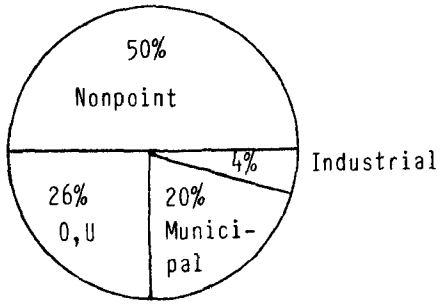


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

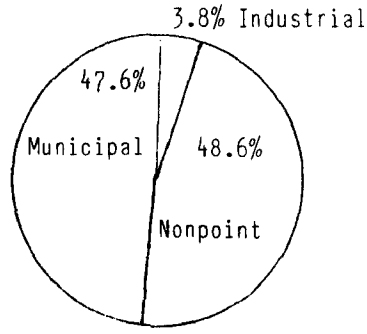
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

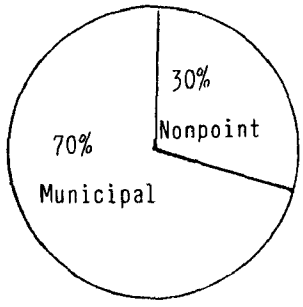
a. Streams and Rivers



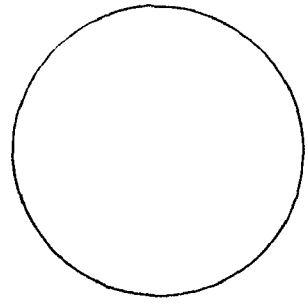
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						D.O.
Industrial		X	X						Nutrients
Non-Point		X	X				X		
Other (inc. natural)									

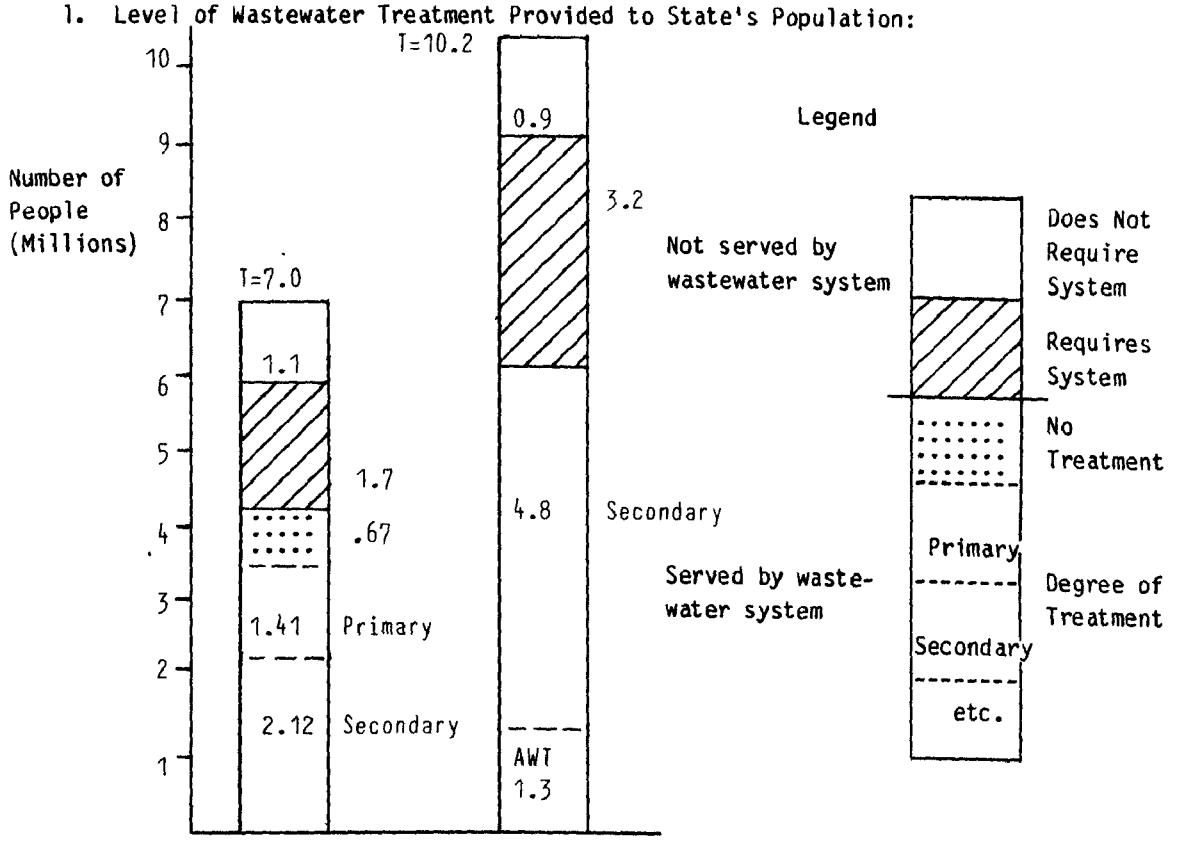
*Number of Stream/River Miles Affected by Toxics: 20
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: Unknown
*Number of Ocean or Great Lakes Mi. Affected by Toxics: --

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

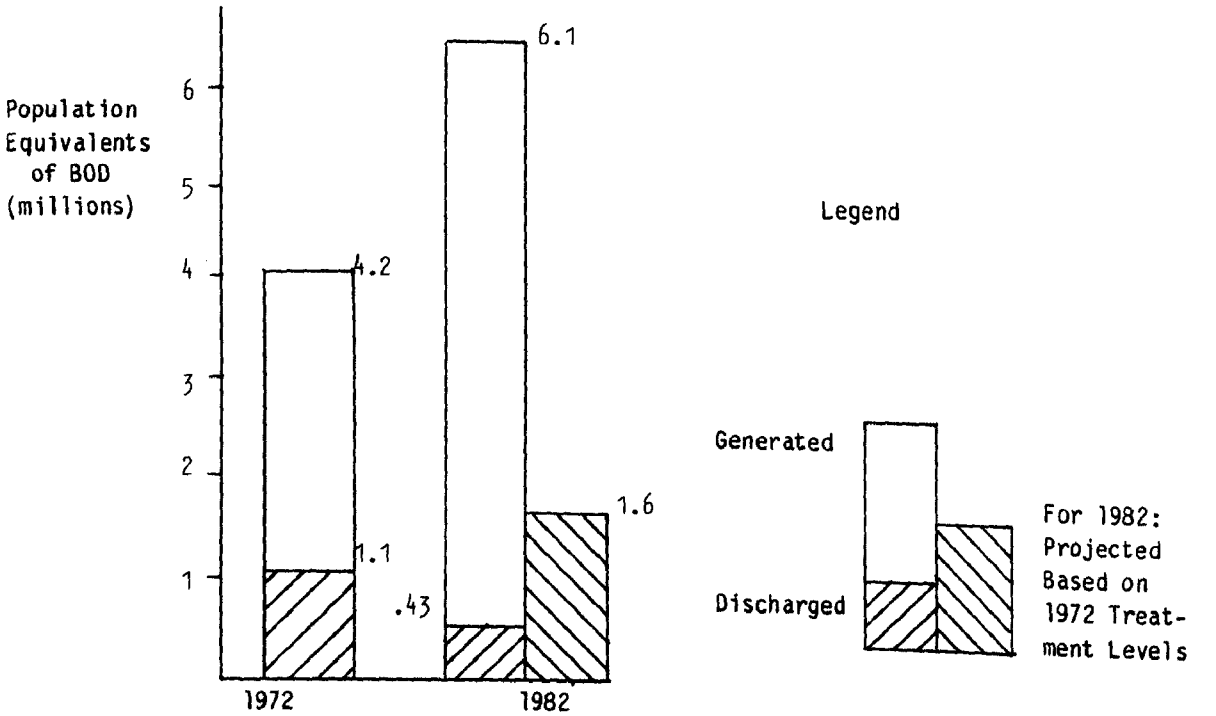
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

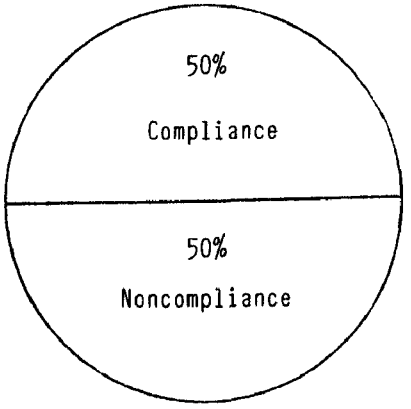
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	78	35	90	Total Permits in Effect in 1982 4,394
Facilities Meeting 1982 Permit Requirements+	39	34	83	
Percentage of Facilities for Which Requirements Being Met	50	97	92	
Percentage of Flow For Which Requirements Met+	33	99.5	94.7	
Facilities Needing Upgrading	78	35	3	

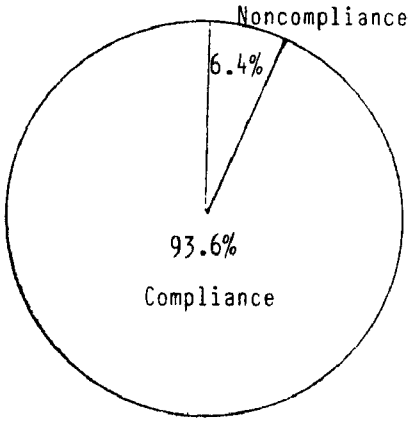
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

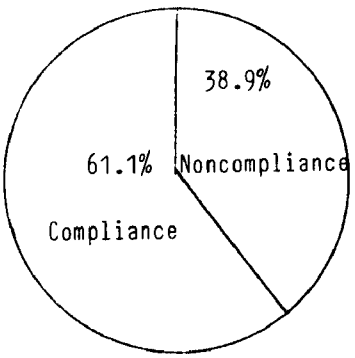
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	77	2	117	Total Permits in Effect in 1982 1,615
Facilities Meeting 1982 Permit Requirements+	30	2	109	
Percentage of Facilities for Which Requirements Being Met	38.9	100	93	
Percentage of Flow for Which Requirements Met+	62	100	96.4	

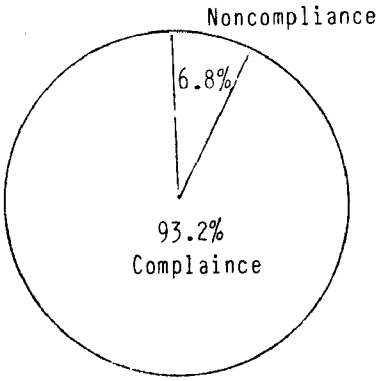
+Includes "No-Discharge" Facilities

D. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

It has been estimated that more than half of the pollutants entering Florida's surface waters are directly related to nonpoint sources of pollution. Streets and parking lots, construction activities, and residential lawns are the primary sources in the urban environment. Rural problems stem from agricultural, silvicultural, and mining activities. Agricultural pollutants include eroded soil, fertilizers, pesticides, and animal wastes. Silviculture and mining contribute sediments and nutrients to receiving waters.

Chapter 17-25, Florida Administrative Code, addresses all new sources of stormwater pollution and encourages the use of certain best management practices. The rule requires the department to be notified of the discharge and a registered professional engineer to certify that the stormwater system properly uses the approved practices.

Urban stormwater is an increasing problem with Florida's expanding growth rate. The stormwater rule went into effect in February of 1982. Several local ordinances around the state provide more stringent regulations to deal with localized critical problem areas. Additional local ordinances are needed to link land use control and stormwater control. Evaluation of the effectiveness of state and local efforts is continuing.

Florida has chosen a non-regulatory approach for both agriculture and silvicluture. The Florida Department of Agriculture and Consumer Services is the state's lead management agency for implementation of the program through local Soil and Water Conservation Districts and State Foresters respectively. The state stormwater rule encourages participation in these programs by providing exemptions for farmers who obtain and implement approved Conservation Plans for foresters who utilized approved forestry BMP's.

Mining accounts for water quality problems in several basins in the state. The state Stormwater Rule, state Dredge and Fill Rule, and state reclamation requirements are addressing the problems resulting from new mining.

In Florida hydrologic modification is associated with virtually all development activities. The water quality effects of hydrologic modifications are controlled through the regulations governing the development activity.

Saltwater intrusion is not a widespread surface water problem in Florida. There are localized severe ground water problems primarily in coastal areas. Regulation is through the Water Management Districts' consumptive use and surface water management rules.

Residuals will be controlled through the state's sludge rule, now in development. Although the state's septic tank rule was recently strengthened, septic tanks will continue to be a problem due to rapid population growth and urbanization.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/W	M/W	I/L	M/L	M/L	M/L	N/A	I/L
Primary Pollutants	Nut. DO Turb. Metals	Nut. Turb.	Nut.	Nut. Turb.	Turb.	D.O.		Nut. Turb. D.O.

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Compliance and enforcement activities are initiated by District or branch offices and include informal conferences and warning letters, formal warning letters, notices or violation and consent orders. Consent orders may be issued at the District level or by headquarters General Counsel staff. Each District has a headquarters attorney assigned to it and a separate enforcement section exists within the Office of General Council. Efforts are made to resolve noncompliance problems without litigation. During 1982 1,167 preadministrative actions and 213 administrative actions were taken in water quality compliance cases. In addition, 13 judicial actions were taken for domestic waste noncompliance and 1 for industrial waste noncompliance. During 1982 approximately $57,400 was collected as a result of assessments from industrial and domestic waste administrative actions.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	244
Number of Pre-Administrative Actions:	16
Number of Administrative Actions:	11
Number of Judicial Actions:	1

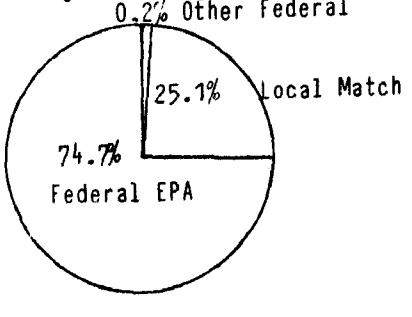
B. Municipal Facility Investment

1972 - 1982

Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,880.1 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,404.1 Million
Other Federal:	$ 4.0
State:	$ 0
Local Match:	$ 468
Other Local:	$ 4

C. Program Activities

Monitoring - the State maintains a fixed-station chemical and biological monitoring network and conducts compliance sampling, intensive surveys and special monitoring studies. New legislation has made the Department the central repository for all surface and ground water data collected by state, local and federal agencies and requires the establishment of a computerized data base, quality assurance programs, and publication of an annual bibliography of all investigations.

Construction Grants - The construction grants program is undergoing expansion and is accepting 205(g) delegations at a rapid rate. The 1983 Legislative Session established a State grant program with a one-time appropriation of $100 million. The state program will be underway during calendar year 1984.

Permitting - The state, which has not assumed NPDES delegation, issues permits for domestic and industrial waste facilities, dredge and fill projects, and stormwater control. State permits, by law, must be issued within 90 days of receipt of a complete application. Over 6,000 point sources are currently under permit. New legislation provided additional positions and funds for inspection of package plants.

Ground Water - the Department's ground water monitoring and investigative capability will be greatly strengthened by recent legislative action which established a statewide ground water quality monitoring network, a program to prevent or reduce the danger of contamination of public water supplies, a pesticides program and a program to plug free-flowing artesian wells. In addition, funds have been made available for a statewide needs assessment to identify hazardous waste generators and advise of appropriate management and disposal methods. A $15 million trust fund was established to match federal funds for Superfund and other uncontrolled hazardous waste site cleanup operations.

VI. SITE-SPECIFIC SUCCESSES

St. Petersburg - In 1972, the State of Florida required that those discharging to the critically polluted areas around Tampa Bay provide advanced wastewater treatment with essentially complete nutrient removal.

St. Petersburg responded with an alternative solution that at the same time was an important first step toward conserving scarce drinking water.

Before the 1940's the city drew its potable water from wells in southern Pinellas County, but with the rapid population growth and the increasing drain on fresh water supplies, the ground water aquifer was soon overpumped. Salt-water intrusion followed, and the aquifer had to be abandoned as a source of fresh water. Since then the city has drawn its water from northern Pinellas County by pipeline, and faced future needs it could not meet.

The city combined the solution to its wastewater disposal problem with a step toward relieving its water shortage. It decided to use modified secondary treatment together with spray irrigation. The treated effluent is sprayed on golf courses, parks, and school yards in the city, saving scarce fresh water for more important uses.

The effluent is treated to safe levels before it is sprayed on sites accessible to the public. The actual spray irrigation is done during hours when there is no public access. A standby deepwell storage system stores the treated effluent during period when irrigation is unnecessary.

Tampa - A City of Tampa treatment plant discharging to Hillsborough Bay was responsible for health department signs warning that the waters were "hazardous to body contact." Today, after construction of an advanced waste treatment plant with the help of federal funds, a large portion of the bay is safe for swimming, with continuing improvement.

Jacksonville - The St. Johns River, which flows past Jacksonville, is improving dramatically after more than 50 raw sewage outfalls were removed from the river with the help of federal grant assistance.

Pensacola - Escambia Bay, near Pensacola, had 73 pollution-caused fish kills in its main body and adjoining bays in 1970, earning it the unenviable title of the fish kill capitol of the nation. Florida requested federal help to trace the sources of pollution and to initiate enforcement efforts. After implementation of the federal-state program, fish kills diminished to the point that today, they are rare. An EPA follow-up test involving the release of a million striped bass to the bay's Escambia River tributary found that half survived, and of the half that died, more were eaten by other fish than died of pollution.

Orlando - Through a federal Clean Lakes grant matched by local funds significant nutrient enrichment and heavy metals contamination have been substantially reduced in Lake Eola in downtown Orlando. Stormwater pollution was identified as the major contributor of pollutants and a number of innovative retrofit control techniques were developed and installed. The installation provided an opportunity to test the efficiency of a series of new control systems and practices. Much of this research provided the basis for the state's stormwater regulation, Chapter 17-25, F.A.C. The clean-up of this lake was especially gratifying for the City of Orlando because its many lakes are a symbol of the city and this particular one appears on its logo.

Tallahassee - Lake Jackson is one of Florida's finest bass fishing lakes. Increasing development in the Meginnis Arm watershed of the lake was causing severe sedimentation and other stormwater related problems. Through a Clean Lakes grant matched by state Water Resouces Restoration funds a large scale state-of-the-art filtration/marsh treatment system was installed. This system is designed to deal with a significant portion of existing pollution problems in the subwatershed. The project has also provided the state an opportunity to evaluate the effectiveness and economics of the large regional treatment approach to dealing with stormwater problems.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Adequate treatment of municipal and industrial waste treatment continues to be a major concern because of continuing rapid population growth, environmentally sensitive receiving waters which require high treatment levels and the state's dependence on ground water which limits land applications of waste.

Between 1972 and 1982 total BOD loading from sewage treatment plants declined while population increased by 45% and the volume of waste generated increased by 57%. In 1972 nearly 50% of facilities provided less than secondary treatment. By 1980 raw and primary discharge had essentially been eliminated from the state and a vast number of facilities have been upgraded to high level secondary and advanced waste treatment. Much attention in the past decade was given to control dredge and fill projects including major public works projects. Minimizing the adverse effects of dredging and filling continues to be a major effort.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

Continued growth of population and industry will make waste disposal increasingly difficult and expensive. Because of generally flat terrain most streams have limited or intermittent flow or are tidal and flow into environmentally sensitive estuaries.

Land application of wastes is a limited option due to the state's great dependence on ground water for public and private water supplies.

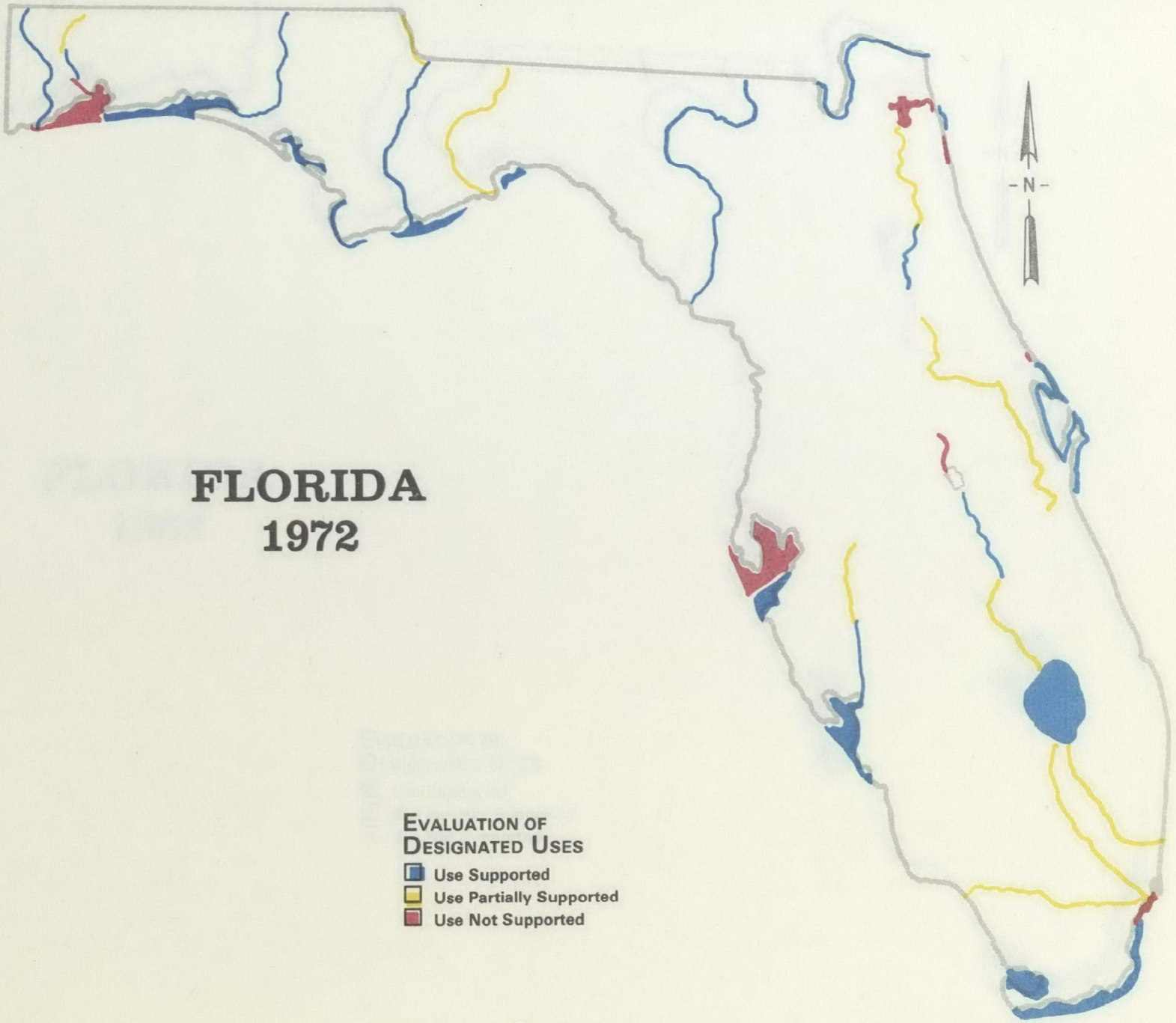
Major state and federal legislation has greatly increased the responsibility of states in protecting the environment. Programs to control toxics and hazardous materials and restore environmentally damaged areas are now a major effort.

These problems have been recognized by the Florida Legislature which, in 1983, passed the $117 million Water Quality Assurance Act. The Act provided funding of $100 million for sewage treatment plant construction and established or strengthened major new programs for ground water protection and monitoring, sewage treatment plant inspections, water quality data collection, protection of drinking water well fields, pesticide control, hazardous waste problem assessment and site cleanup, septic tank control and emergency response capability.

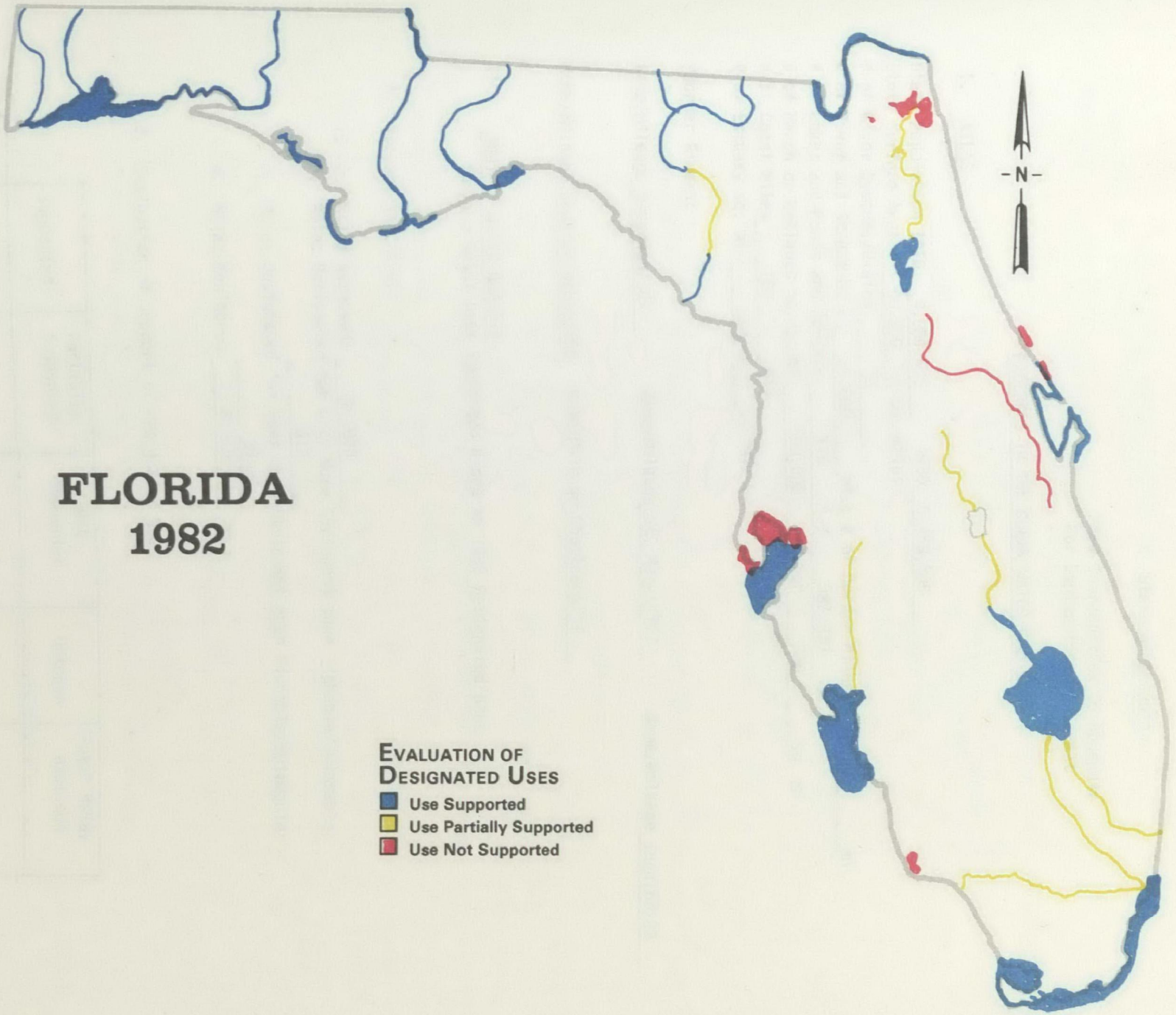
AGENCY PREPARING REPORT: Fla. Dept. of Environmental Regulation
2600 Blair Stone Road
Tallahassee, Florida 32301

CONTACT PERSON & PHONE #: Victoria J. Tschinkel, Secretary
904/488-4805

DATE: September 1, 1983


N
FLORIDA
1972
EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported

FLORIDA
1982



State of GEORGIA*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 4,589,575 1980 5,463,105
State Surface Area 60,000 sq. miles
# of River Systems/Basins 15
# of River and Stream Miles 20,000 mi.; # of Border Miles* 685 mi.
# of Lakes and Ponds and Acreage 175 / 387,373 ac.
# of Marsh or Wetlands ac./sq.mi. 500,000 ac. or 780 sq. mi.
# of Coast Miles 100 mi.
# of Estuary sq. mi. 594 sq. mi.

*Border Rivers:

Name/Mileage Savannah/301 Name/Mileage St. Marys/127 Name/Mileage Tugaloo/23

Name/Mileage Chattahoochee/198 Name/Mileage Chattooga/36

II. AMBIENT WATER QUALITY

Surface Water uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

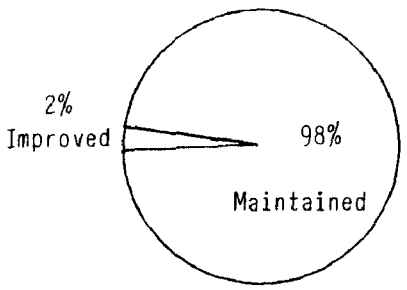
1. a. Miles Assessed: 17,000
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 519
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 28
   d. Miles Monitored: 8,140

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	15,976 mi.	130	894		17,000 mi.
	94%	1%	5%		100%
1982	16,147 mi.	383	470		17,000 mi.
	95%	2%	3%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:		424
Miles Degraded:		
Miles Maintained:	16,576	
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 387,373

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Acres Monitored: 44,630

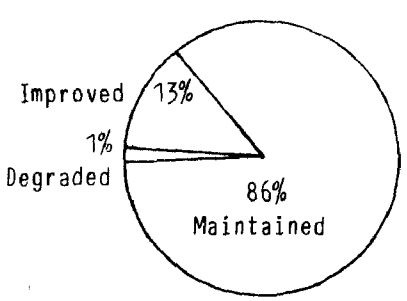
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	267,360 ac.	45,819	10,596	15,470	339,245 ac.
	79%	13%	3%	5%	100%
1982	331,034 ac.	50,882	5,457		387,373 ac.*
	86%	13%	1%		100%

*Three major lakes with a total acreage of 48,128 acres were constructed since 1972.

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	---	51,068
Acres Degraded:	---	600
Acres Maintained:	335,705	
Unknown:	---	

C. Estuaries and/or Oceans

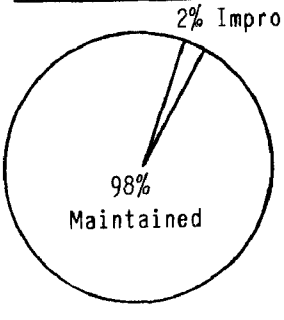
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	475	N/A
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	N/A
	c. Sq. Mi. Miles Designated for Uses Less Stringent than Fishable/Swimmable:	13	N/A
	d. Sq. Mi./Miles Monitored:	55	N/A

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	458	10	7		475
	95%	3%	2%		100%
1982	468		7		475
	98%		2%		100%

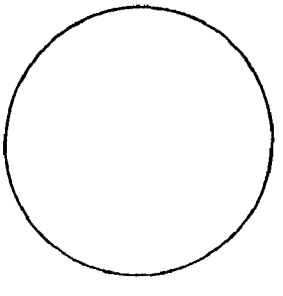
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	---	10
Sq.Mi.Degraded:	---	
Sq.Mi.Maintained:	465	
Unknown:	---	

b. Oceans N/A
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes (Not Applicable)

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

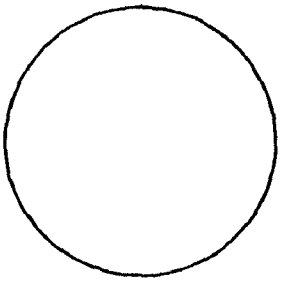
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

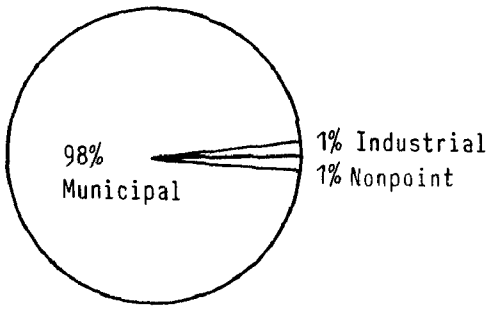


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

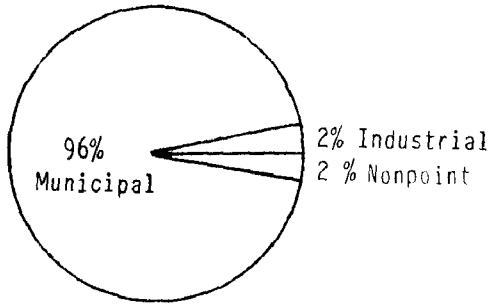
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

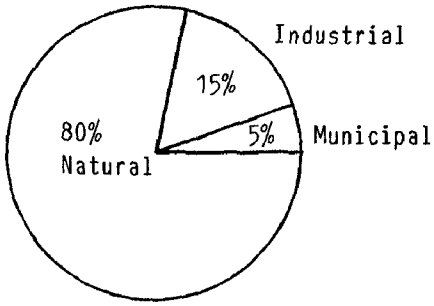
a. Streams and Rivers



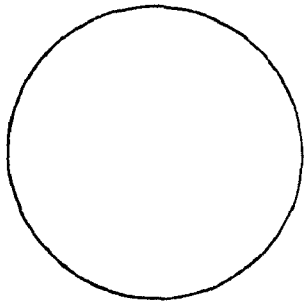
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						D.O., Nut.
Industrial		X				X			
Non-Point	X		X						Coli., Nut.
Other (inc. natural)									

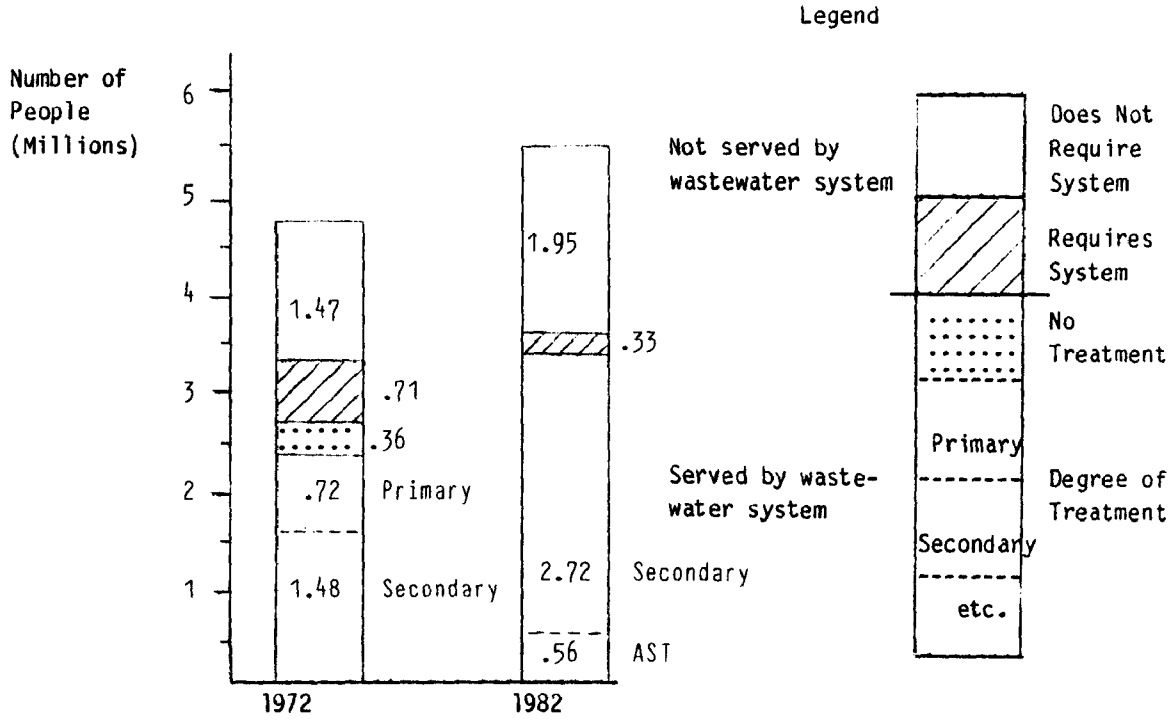
*Number of Stream/River Miles Affected by Toxics: 25
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 0
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

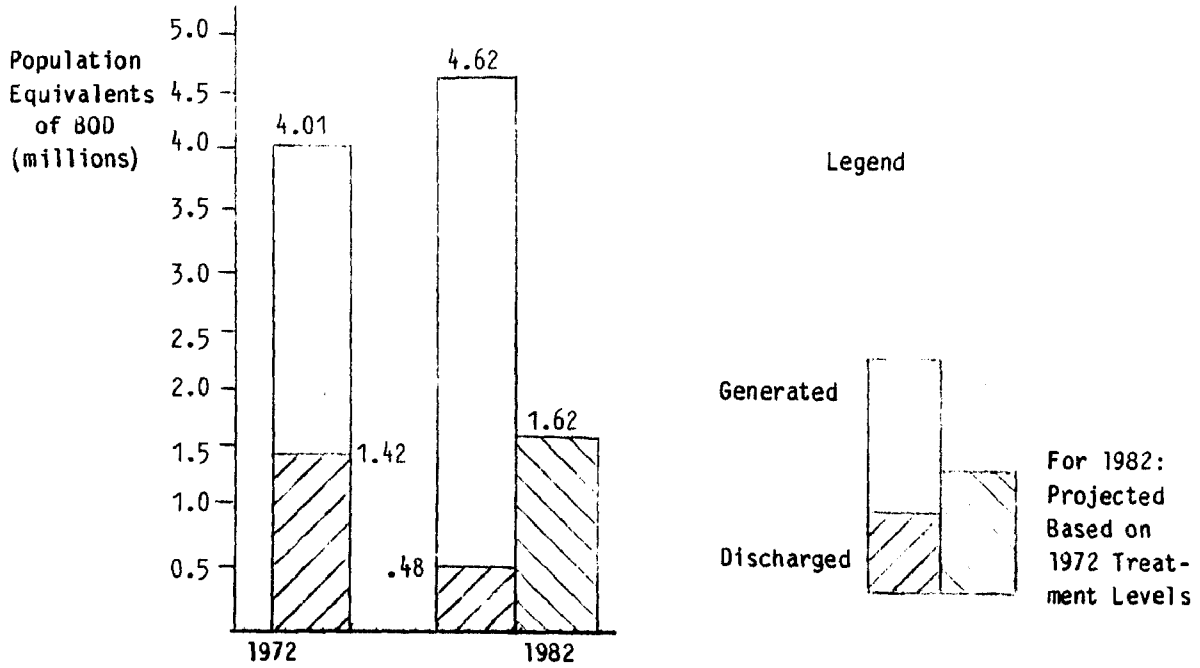
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

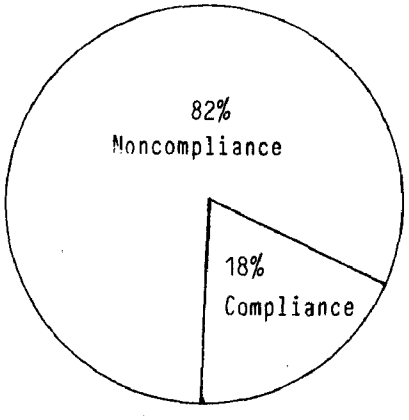
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	84	49	60
Facilities Meeting 1982 Permit Requirements+	15	42	57
Percentage of Facilities for Which Requirements Being Met	18%	86%	95%
Percentage of Flow For Which Requirements Met+	2%	90%	95%
Facilities Needing Upgrading	69	49	0

Total Permits in Effect in 1982: 481

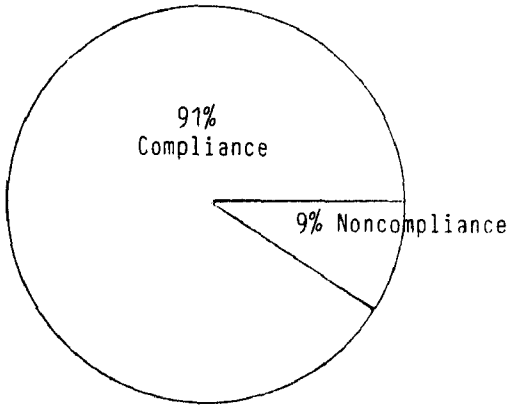
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

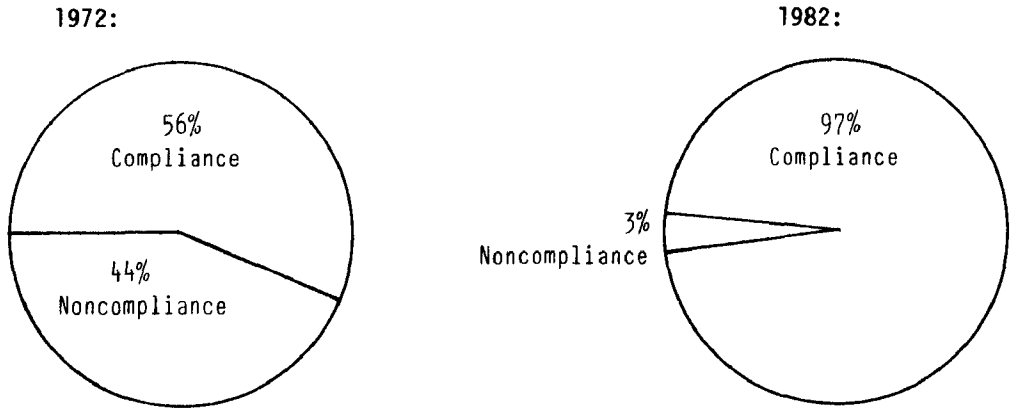
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	90	15	80
Facilities Meeting 1982 Permit Requirements+	50	15	77
Percentage of Facilities for Which Requirements Being Met	56%	100%	96%
Percentage of Flow for Which Requirements Met+	70%	100%	99.75%

Total Permits in Effect in 1982: 900

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

Section 208 task forces composed to evaluate major categories of nonpoint sources found that: 1) several categories of nonpoint sources are adequately regulated 2) empirical data would be necessary to evaluate adequately the statewide impact of the nonpoint sources and 3) additional research would be necessary to evaluate best management practices. Studies in designated planning areas revealed that urban stormwater runoff was a significant source of degraded water. Consequently, the management response stressed continued regulation of controlled nonpoint sources, enactment of non-regulatory programs for uncontrolled sources, and formulation of a statewide study to evaluate the extent and magnitude of nonpoint sources.

Task forces found that several regulated nonpoint sources -- mining, hydrologic modificaton, saltwater intrusion, and residual wastes -- had lower water quality problem potential than other nonpoint sources. Construction, another regulated activity, was judged to have a higher potential for causing significant water quality problems. In those instances, the State elected to continue existing regulatory programs.

Agricultural and silvicultural practices and urban stormwater runoff, major potential nonpoint sources, are not generally controlled by water quality regulations. Here, the management strategy emphasized the implementation of a nonregulatory approach, assessment of the impact of nonpoint sources on water quality, and subsequent evaluation of the need for regulatory controls.

The nonregulatory approach has been conducted through contracts with implementing agencies -- the Georgia Forestry Commission and the State Soil and Water Conservation Committee. Contracts have been awarded for public education and training, monitoring of agricultural and forestry management practices, and developing planned approaches to refining and improving the nonregulatory program. Urban stormwater management education programs have been developed for local officials and citizens.

A nonpoint source assessment study is being conducted to evaluate the extent and magnitude of the impact of agriculture, commercial forestry, and urban development impacts on water quality in the non-metropolitan areas of Georgia. Significant water quality problems revealed by this three year study will be identified and an appropriate response devised.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	*UNK/L	I/W	UNK/L	I/L	M/L	I/L	I/L	I/L
Primary Pollutants	BOD Sediment	Sediment Organics Nutrients	Sed.	Sed.	Sed.	D.O.	Chloride	

*Severity (UNK indicates that impact is under investigation)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Georgia Environmental Protection Division utilizes all reasonable means to obtain compliance including technical assistance, noncompliance notification, conferences, administrative orders, consent orders, and civil penalities. In 1982, eleven consent orders were negotiated with industries to correct permit violations. The orders included $274,000 in negotiated settlements. In 1973, it is estimated that negotiated settlements collected amounted to less than $30,000.

Effective tools to gain municipal facility compliance include sewer connection bans and withholding federal or state project funds until permit violations are resolved. Twenty-eight municpalities were operating under sewer connection bans in 1982. The number of enforcement orders has varied over the past eight years with two in 1975, twelve in 1980, nine in 1981, and six in 1982.

2. Actions Taken Since January 1982 Against Municipal and Non-Municial Facilities in Significant Non-Compliance in 1982

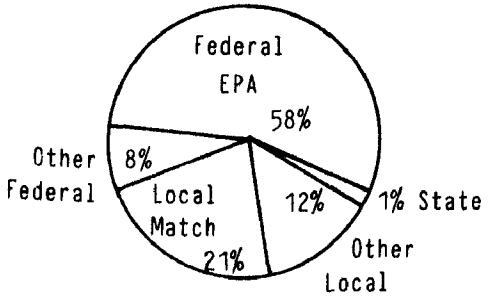
Total Number of Facilities:	13
Number of Pre-Administrative Actions:	5
Number of Administrative Actions:	8
Number of Judicial Actions:	

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,015 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 591 Million
Other Federal:	$ 81
State:	$ 13
Local Match:	$ 210
Other Local:	$ 120

C. Program Activities

WATER POLLUTION CONTROL PROGRAM PERSPECTIVE

The first major legislation to deal with water pollution control in Georgia was passed in 1957. The Act was ineffective and was replaced by the Water Quality Control Act of 1964. This Act established the Georgia Water Quality Control Board, the predecessor of the Georgia Environmental Protection Division which was established in 1972. Early efforts by the Board in the late 1960's and early 1970's included documenting water quality conditions, cleanup of major pollution problems and the establishment of water quality standards. Trend monitoring efforts were initiated and a modest state construction grants program was implemented.

In the mid-1970's emphasis was placed on EPA construction grants program. First and second round NPDES permits were negotiated and O&M, compliance monitoring, and enforcement programs initiated. Basin planning, trend monitoring, intensive surveys, modeling and wasteload allocation work were well underway.

In the late 1970's and early 1980's effort has continued on construction grants, permits, enforcement and monitoring. Emphasis has been placed on permit enforcement, improving municipal plant operation, justification of advanced treatment wasteload allocations, and monitoring to determine the extent and impact of non-point source pollution. Work has been initiated to address industrial pretreatment and emergency response. It is likely that in the mid-1980's additional work to identify and quantify toxic substances will receive increased attention.

WATER QUALITY MONITORING

The goal of the water quality control programs is to restore and maintain the purity of the State's waters for the maximum benefit of its citizens. In order to determine the progress made toward this goal and to establish a baseline record of water quality, the EPD operates a trend monitoring network in the streams, lakes, and estuaries of the 15 river basins in the State. In addition to the trend monitoring program, intensive stream surveys are conducted which complement the fixed-station monitoring program.

The Clean Lakes Program identified and determined the trophic status of Georgia publicly-owned lakes. Eight lakes were identified as in need of restoration or protection and actions have been initiated to correct problems.

CONSTRUCTION GRANTS

The objective of the Program is to insure that needed wastewater treatment facilities are properly planned, designed and constructed in order to eliminate existing problems caused by inadequately treated discharges and to avoid the creation of such problems in the future. Georgia is one of only a few states which has assumed all of the functions that EPA can legally delegate. State assumption of the Construction Grants Program has streamlined project reviews, eliminated duplication of efforts, and maximized state and local responsibility for project management and success.

PERMITS, OPERATION, AND ENFORCEMENT

The NPDES permit system provides a basis for municipal and industrial discharge permits, monitoring compliance with limitations, and appropriate enforcement action for violations. The State has instituted a one-step environmental permitting system. All of Georgia's environmental permits are issued by the EPD, therefore most applications can be processed in 90 days.

The EPD has long recognized the difficulty associated with the operation and maintenance of POTWs. Additional work is needed to complete and implement the industrial pretreatment program. In a continuing effort to resolve these problems, the EPD employs various methods of assistance including training courses, seminars for city managers, and technical assistance.

EPD and EPA Region IV with input from selected plant personnel, completed a project in 1980 that defined minimum standards of performance for treatment plants. The project identified seven categories and established minimum requirements for each. Operation and maintenance at the majority of the plants evaluated in 1981 and 1982 has improved and improvement in effluent quality has occurred at some facilities.

VI. SITE-SPECIFIC SUCCESSES

CHATTAHOOCHEE RIVER

In 1972, the Chattahoochee River Basin from Buford Dam to Franklin was beset with water quality problems. Inadequately and untreated municipal and industrial wastewater discharges to many tributaries created grossly polluted conditions which greatly impaired beneficial uses. In the river upstream of Peachtree Creek fecal coliform densities and suspended solids concentrations frequently were high. It was rarely used for recreation. Downstream of the Atlanta R.M. Clayton WPCP and other facilities which then provided only primary treatment to a portion of their wastewaters, the Chattahoochee River was grossly polluted. Ammonia, BOD, and fecal coliform bacterial values were very high and the river was often septic during the warm months. The macroinvertebrate fauna was indicative of gross pollution.

The pollution abatement program which was begun by Georgia consisted of the construction of interceptor sewers and WPCPs. Several overloaded and inadequate facilities were eliminated. Wastewaters were removed from most tributaries. Intensive investigations of Cobb County tributaries conducted in 1982 were compared to 1966 studies and revealed a marked improvement in water quality. The formerly grossly polluted tributaries now possess excellent water quality.

Since the removal of WPCP discharges from tributaries, fecal coliform bacterial densities in the river have been greatly reduced and the reach from Buford Dam to Peachtree Creek is heavily used for recreation by nature lovers, bathers, canoeists, and rafters. In 1978 the Congress authorized the establishment of the Chattahoochee River National Recreation Area and drinking water is now provided to Gwinnett, Cobb, and DeKalb Counties and the City of Atlanta. Downstream of the R. M. Clayton WPCP, fecal coliform criterion is occasionally violated, however, the river meets the dissolved oxygen criterion for the fishing classification. The macroinvertebrate fauna is more diverse than in former years. A viable warmwater fishery exists. The chemical, physical, and biological data reveal a great improvement compared to those data from investigations of the sixties and seventies. The reach of the river downstream of Peachtree Creek to Franklin generally supports the fishing classification and this despite a doubling of the metropolitan Atlanta population during the past twenty years.

SAVANNAH HARBOR

Prior to 1972, Savannah Harbor was badly degraded by partially treated and untreated wastewater from several municipal and more than 15 industrial sources. Physical, chemical, and bacterial analyses clearly revealed the impact of wastewaters. Dissolved oxygen concentrations were frequently very low whereas BOD_5 and COD were higher than in unaffected regions. pH was low in the vicinity of some industrial outfalls. Fecal coliform bacterial densities were high and were detected as far downstream as the Tybee Island recreational areas. Some criteria of water use classifications were frequently exceeded. The region was closed to harvesting of shellfish. Other aquatic life was also affected and the harbor created a barrier to migrating fish which spawn upstream in the Savannah River. The harbor was useless for aesthetic and recreational purposes.

A pollution abatement program was begun in the mid-sixties with the goal of obtaining secondary treatment for all discharges. By 1977 effective treatment measures had been instituted for most wastewaters including municipal. In 1982 water quality was good in and downstream of the harbor. Compliance with the water use classification is consistently maintained. The economic manifestations of good water are apparent in the renaissance of Savannah and especially in the use of the river. Hotels have been constructed on the river bank and shops catering to tourists are operating successfully in buildings formerly used as warehouses. Parks have been laid out or improved along the now aesthetically pleasant river.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Historically, the major environmental problem in Georgia has been water pollution from publicly owned wastewater treatment works (POTW), and this remains Georgia's major environmental problem in 1982. The problem with municipal discharges has not been the absence of technology but the insufficiency of funds for the construction of the required facilities. The funding problem was partially alleviated by the passage of the Federal Water Pollution Control Act of 1972 (PL 92-500). Federal funding under PL 92-500 has fluctuated a great deal and funding for Georgia projects through the Construction Grants Program has decreased steadily since 1976 when Georgia received approximately $117 million, to the current level of approximately $41 million per year. Georgia still has significant needs totalling over $300 million for wastewater treatment projects of high priority to achieve water quality standards, and still greater needs for projects for expansion and upgrading of facilities for many small communities. New methods of financing municipal treatment works are actively being sought by the State.

Part B. Major Remaining Problems:

- ___ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ___ - Pollution arising from abandoned industrial and/or mining facilities.

Many POTW's also suffer from improper operation and maintenance. The correction of problems with operation of these facilities is a high priority with the State of Georgia. The State saw a reduction in major facilities which were out of compliance with their NPDES permit limitations from 31 in 1981 to 15 in 1982. Continued emphasis will be placed on this area.

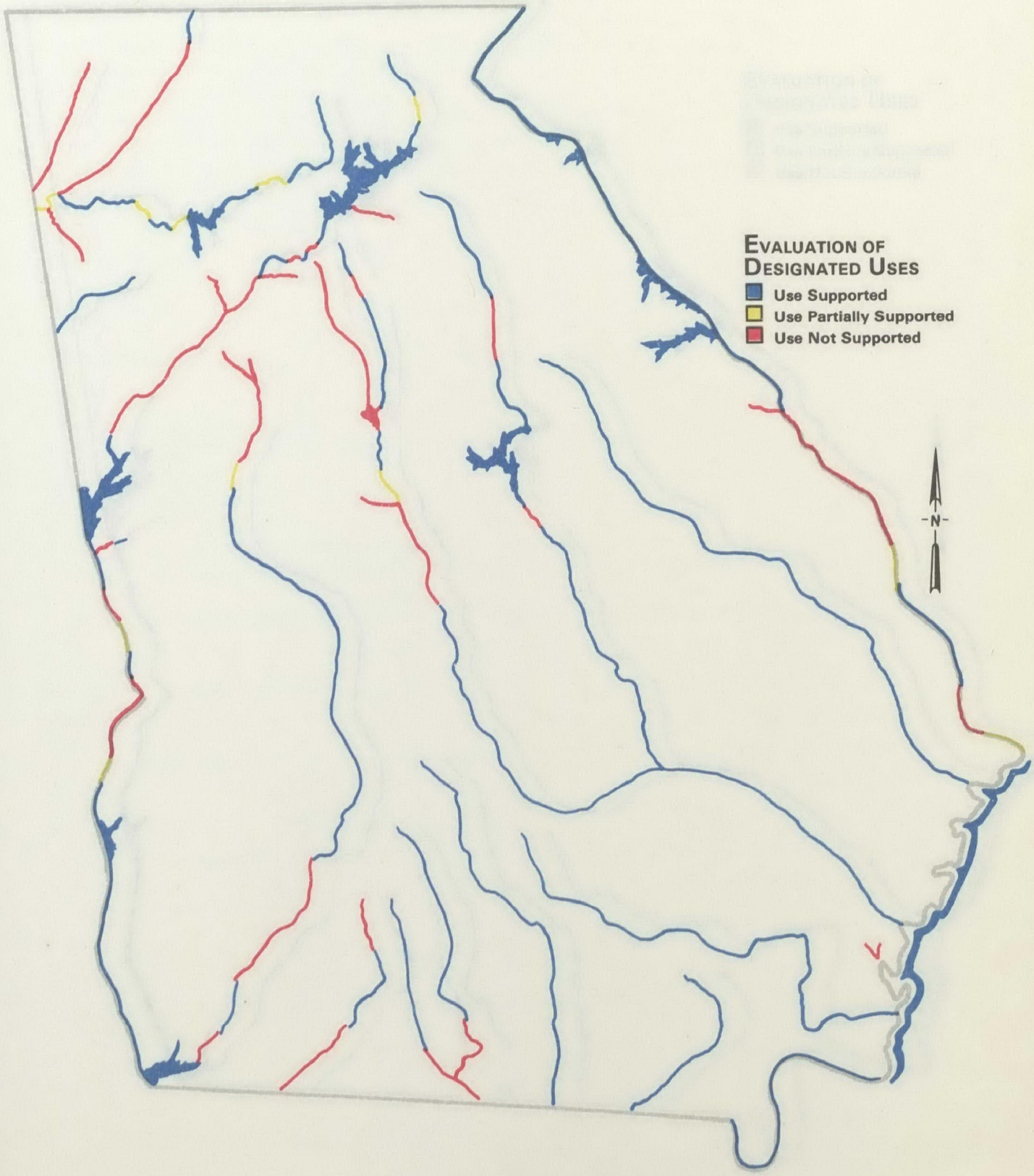
The identification and control of toxins in industrial wastewater discharges is a concern in Georgia. The State has incorporated biomonitoring requirements into industrial NPDES permits where there is a potential for toxicity. This program requires the industry to formulate a two-phase biomonitoring program including first conducting a static bioassay on the effluent to determine if toxicity is present and, if potential problems are identified in the first phase, then performing more extensive effluent bioassays such as 96-hour flow-through tests to determine the amount and cause of the toxicity. The results of the biomonitoring program will then be used by the State to determine what measures are necessary for the industry to reduce or eliminate toxicity through source control or improved treatment. This same approach is being incorporated into the industrial pretreatment program to ensure that toxins discharged by industry into POTWs do not interfere with the operation of the treatment works or pass through untreated to the environment.

AGENCY PREPARING REPORT: Environmental Protection Divison
270 Washington Street, S.W.
Atlanta, Georgia 30334

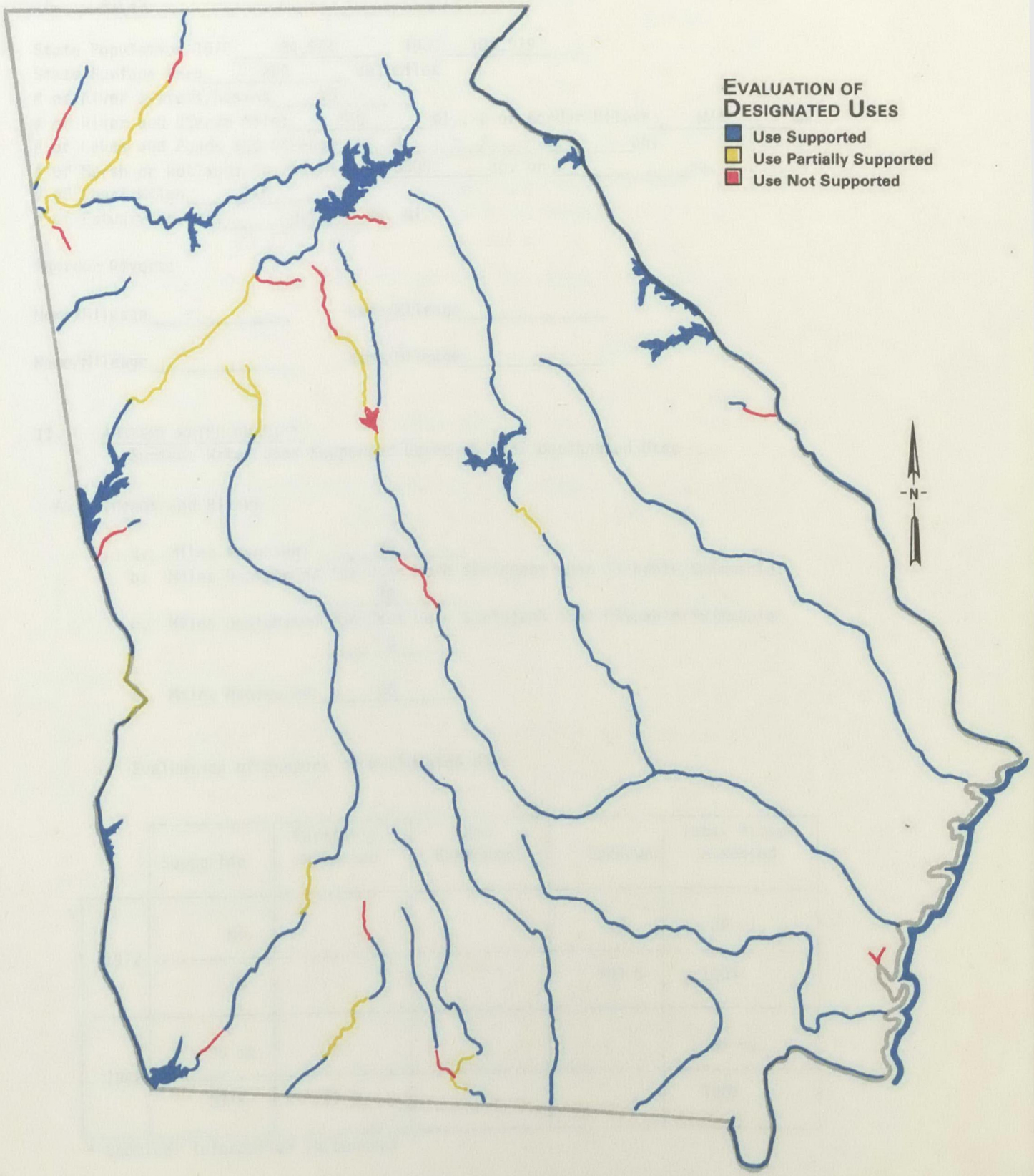
CONTACT PERSON & PHONE #: J. Leonard Ledbetter (404) 656-4713

DATE: 7-15-83

GEORGIA
1972



GEORGIA
1982



Territory of Guam*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 84,996 1980 106,979
State Surface Area 212 sq. miles
# of River Systems/Basins 15
# of River and Stream Miles 150 mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage 4 / 3.5 ac.
# of Marsh or Wetlands ac./sq.mi. 3500 ac. or _____ sq. mi.
# of Coast Miles 116 mi.
# of Estuary sq. mi. 1.5 sq. mi.

*Border Rivers:

Name/Mileage _____ Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 36
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 70
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 36

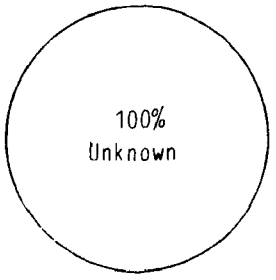
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.			36	36 mi.
	%			100 %	100%
1982	30 mi.	6			36 mi.
	83 %	17 %			100%

* Chemical information throughout

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:	36	

B. Lakes and Reservoirs

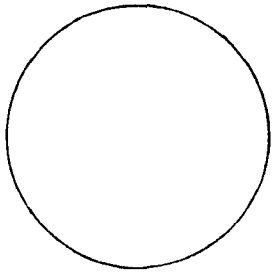
1. a. Acres Assessed: 0
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: _____
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	ac.				ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

C. Estuaries and/or Oceans

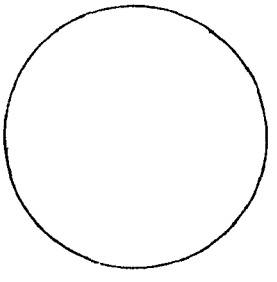
	Estuaries	Oceans
1. a. Square Miles/Miles Assessed:	_____	14
b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	_____	_____
c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	_____	_____
d. Sq. Mi./Miles Monitored:	_____	14

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	mi.			14	14 mi.
	%			100 %	100%
1982	13.5 mi.	0.5		14	mi.
	96 %	4 %			100%

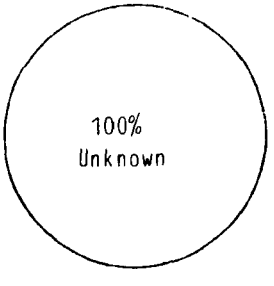
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	14	

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

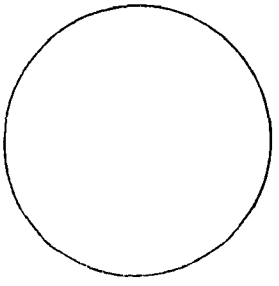
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

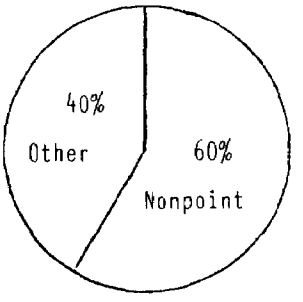


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

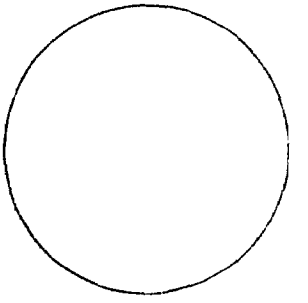
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

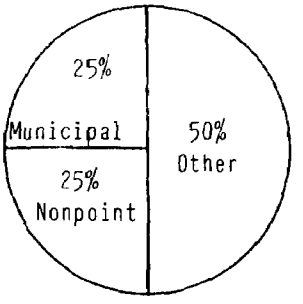
a. Streams and Rivers



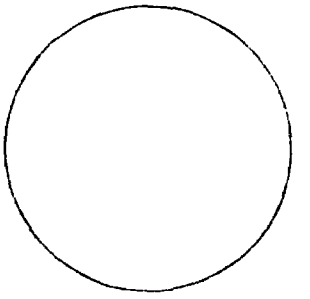
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X								
Industrial									
Non-Point	X	X	X						c,n
Other (inc. natural)		X	X						

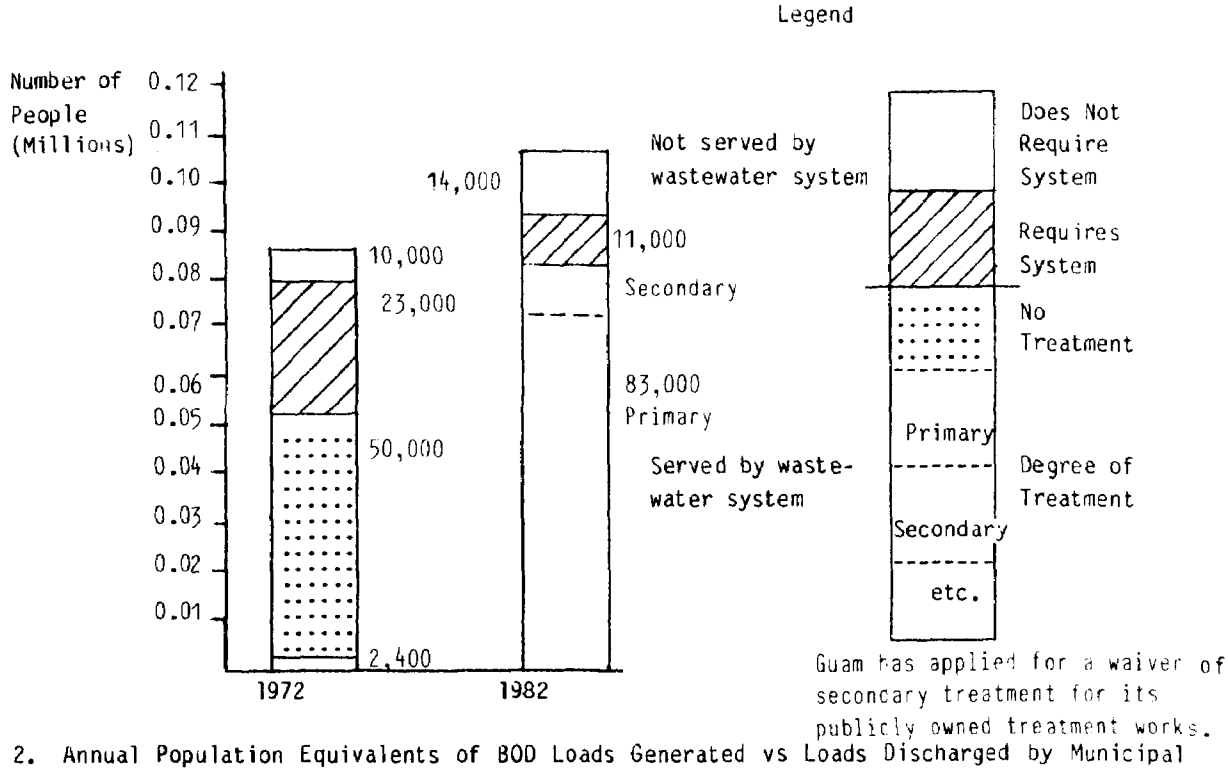
*Number of Stream/River Miles Affected by Toxics: _____
*Number of Lake/Reservoir Acres Affected by Toxics: _____
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2. (map attached)

III. POINT SOURCES

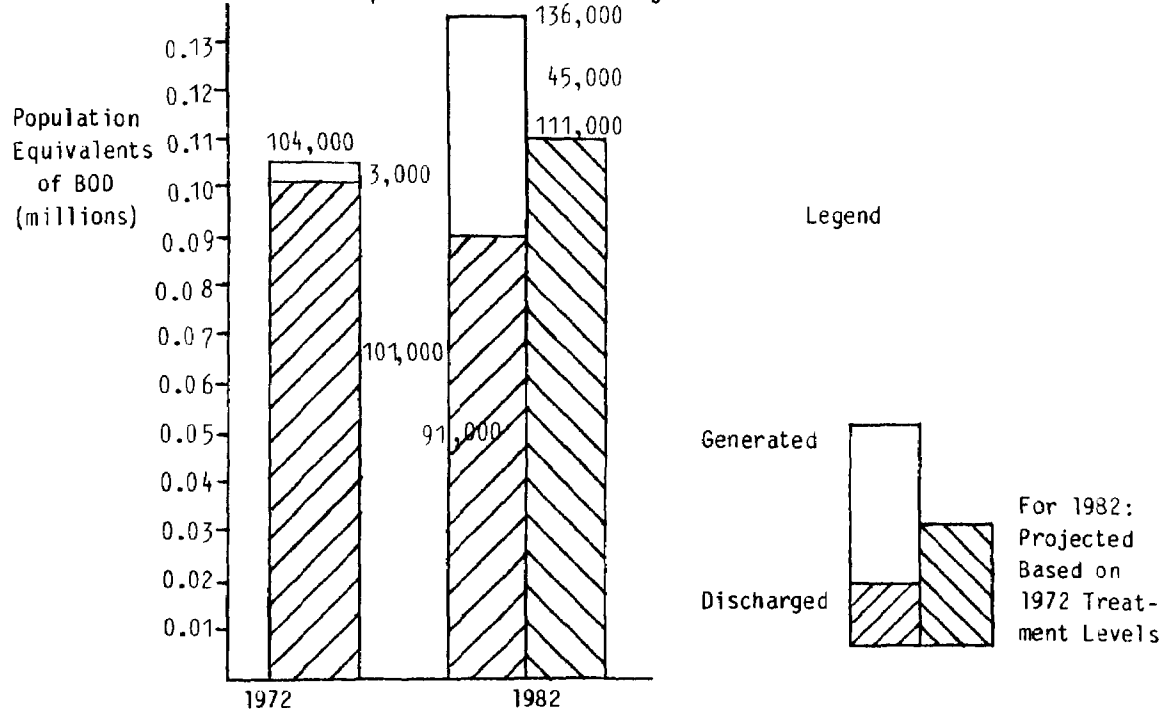
A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



Guam has applied for a waiver of seconcary treatment for its publicly owned treatment works.

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

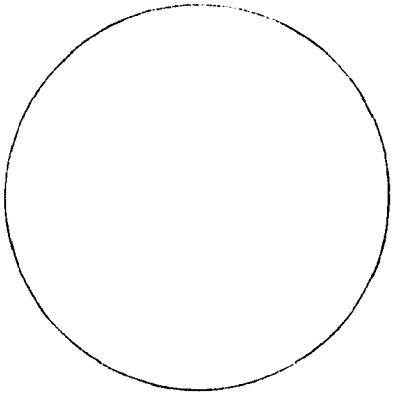
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	2	5	
Facilities Meeting 1982 Permit Requirements[+]		1	2	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met		50%	40%*	
Percentage of Flow For Which Requirements Met[+]		21%	1%*	
Facilities Needing Upgrading		1	3*	7

[+]Includes "No-Discharge" Facilities

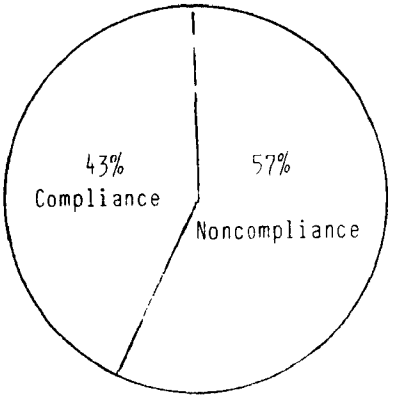
*The two major plants (78% of flow) have applied for waiver of secondary treatment.

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

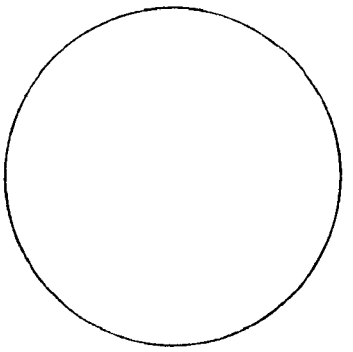
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	0	12	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements[+]			12	
Percentage of Facilities for Which Requirements Being Met			100%	
Percentage of Flow for Which Requirements Met[+]			100%	12

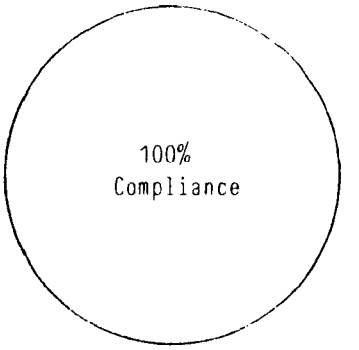
[+]Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The Guam Water Quality Management Plan (208 Plan) was approved in 1979. Implementation of the Plan's recommendations has been largely carried out through existing programs of the Guam Environmental Protection Agency.

Urban runoff appears to have some effect on streams in localized areas. Its affects on marine receiving waters are unknown at present but are under study. Runoff in northern Guam is generally routed to ponding basins and injection wells but appears to have minimal effect on groundwater (See VII).

A survey of agriculture in relation to water quality has been completed. Due to the generally low level of agricultural development on Guam, no impact was found.

Erosion from construction activities was a problem prior to the promulgation of control regulations in 1975. Compliance is good and an active inspection program was initiated a year ago.

Hydrologic modification generally affects Guam waters during construction only, causing increased sedimentation. Adequate controls are established via local law and construction specifications.

Saltwater intrusion is a problem in some water wells, largely as a result of well location rather than overpumping.

Solids and hazardous wastes are controlled by local and federal law. Some pollution from Guam only civilian landfill operation may reach a nearby stream. The site is on the Superfund Priority List and funds are being sought to conduct core sampling of the landfill.

The Guam Environmental Protection Agency has assumed increased responsibility for oil spill response and investigation under a Cooperative Agreement with the Coast Guard.

Non-Point sewage pollution is a problem for some localized stream and marine areas and is quite likely contributing to higher-than-average nitrate levels in groundwater. Enforcement is conducted under local law and village sewer surveys. Criteria for management of sewage sludge are being developed.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	I	N.A.	N.A.	I	I	I/L	M/L
Primary Pollutants	C, Nut.				SS			Nut.,O*

*O-unknown pollutants from landfill disposal

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Enforcement against point source discharge under NPDES permits is referred to U.S. EPA, Region IX who have authority for the program. Enforcement against non-NPDES discharges is taken by the Guam Environmental Protection Agency under the Guam Water Pollution Control Act. Voluntary compliance and technical assistance are preferred, but when these fail, a Notice of Violation is issued stating the problem and specifying a remedy to be accomplished. Failure to correct the situation leads to an Order of Compliance. At either of these two stages, appeal to the GEPA Board of Directors is possible. Continued non-compliance results in the case being referred to the Territorial Attorney General.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

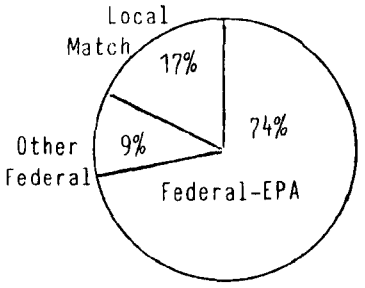
Total Number of Facilities:	4
Number of Pre-Administrative Actions:	4
Number of Administrative Actions:	
Number of Judicial Actions:	

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 45.25 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 33.41	Million
Other Federal:	$ 4.06	
State:	$	
Local Match:	$ 7.78	
Other Local:	$	

*Guam presently has a waiver of the local match requirement.

C. Program Activities

The Guam Environmental Protection Agency was created in 1973 from the Guam Water and Air Pollution Control Commissions. Legislation in force locally in 1972 included the Guam Water Pollution Control Act, Toilet Facilities and Sewage Disposal Act, and Guam Water Quality Standards. Permitting activities were carried for septic tanks and sewer connections (still a major water pollution control activity).

Monitoring efforts were started in 1973, but systematic sampling and analysis was not begun until 1978 when the Water Monitoring Strategy was completed. Seven river/marine complexes are sampled for physical/chemical parameters, and eleven locations constitute the biological monitoring network. Marine recreational waters are sampled weekly for bacterial contamination.

Planning activities have been carried out since 1976 and led to the completion of the Guam Water Quality Management Plan in 1979. Implementation of the plan has largely been through existing agency programs. A complete update/revision is scheduled for FY 84.

The Guam Solid and Hazardous Waste Management Plan was completed in 1982. GEPA is in the process of applying for delegation of authority for hazardous wastes. The Agency has increased responsibilities for oil spill response and investigation under a Cooperative Agreement with the Coast Guard.

GEPA has delegation of authority for safe drinking water and underground injection control but is not actively seeking delegation for the NPDES program. The Agency administers an operator certification program; the Guam Community College has initiated training programs for both wastewater and water operators.

Public participation has been an important part of the decision-making from the beginning and was particularly emphasized from 1976-78 during the water quality management planning process. Current activities include a citizens advisory group and wide circulation of documents to interested parties, in addition to the required public hearings.

VI. SITE-SPECIFIC SUCCESSES

This is a difficult question to answer because Guam's water quality has always been high. We have no heavy, polluting industries with the exception of power plants. Even Apra Habor, heavily used by commerical and military shipping, is remarkably clean.

We are proud of the fact that all raw sewage discharges to marine waters were eliminated in 1979 with start-up of the Island's two major treatment plants. Although most of this sewage discharge was through a deep ocean outfall, some occurred right at the coastline or over cliffs into the water. In addition, sewage collection and treatment facilities are being provided for southern villages which have traditionally relied on inadequate individual systems.

The other "success" would be our groundwater management program, described in VII.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The northern half of Guam is a limestone plateau through which water permeates readily (note on the Guam map that there are no rivers in northern Guam). Water moving through the limestone comes to rest on impermeable volcanics forming a para-basal aquifer, or on sea water forming a basal aquifer. This groundwater provides 70% of the Island's potable water and has been designated a principal source aquifer under the federal Safe Drinking Water Act. Because of the high permeability of the limestone, pollutants can penetrate readily. Guam's groundwater contains 2 to 2.5 ppm nitrates, twice the national average. The exact cause is unknown although septic tank effluent is suspected to be a major cause. Some wells show evidence of salt water intrusion. The Guam Environmental Protection Agency completed a three-year comprehensive study of the groundwater at the end of 1982. Both quantity and quality were studied. Results of several technical investigations indicated that the groundwater is capable of supplying 60 mgd on a sustained yield basis. After analysis for 142 priority pollutants, the water was found to be remarkably clean. The result of the study has been a comprehensive management program, including specifications for well location, construction and operation, legal and institutional framework, and land use practices. The challenge for the future is to implement this management program.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_____ - Identification and control of toxic pollutants from industrial and non-point sources.

_____ - Municipal wastewater plant operation, maintenance, and rehabilitation.

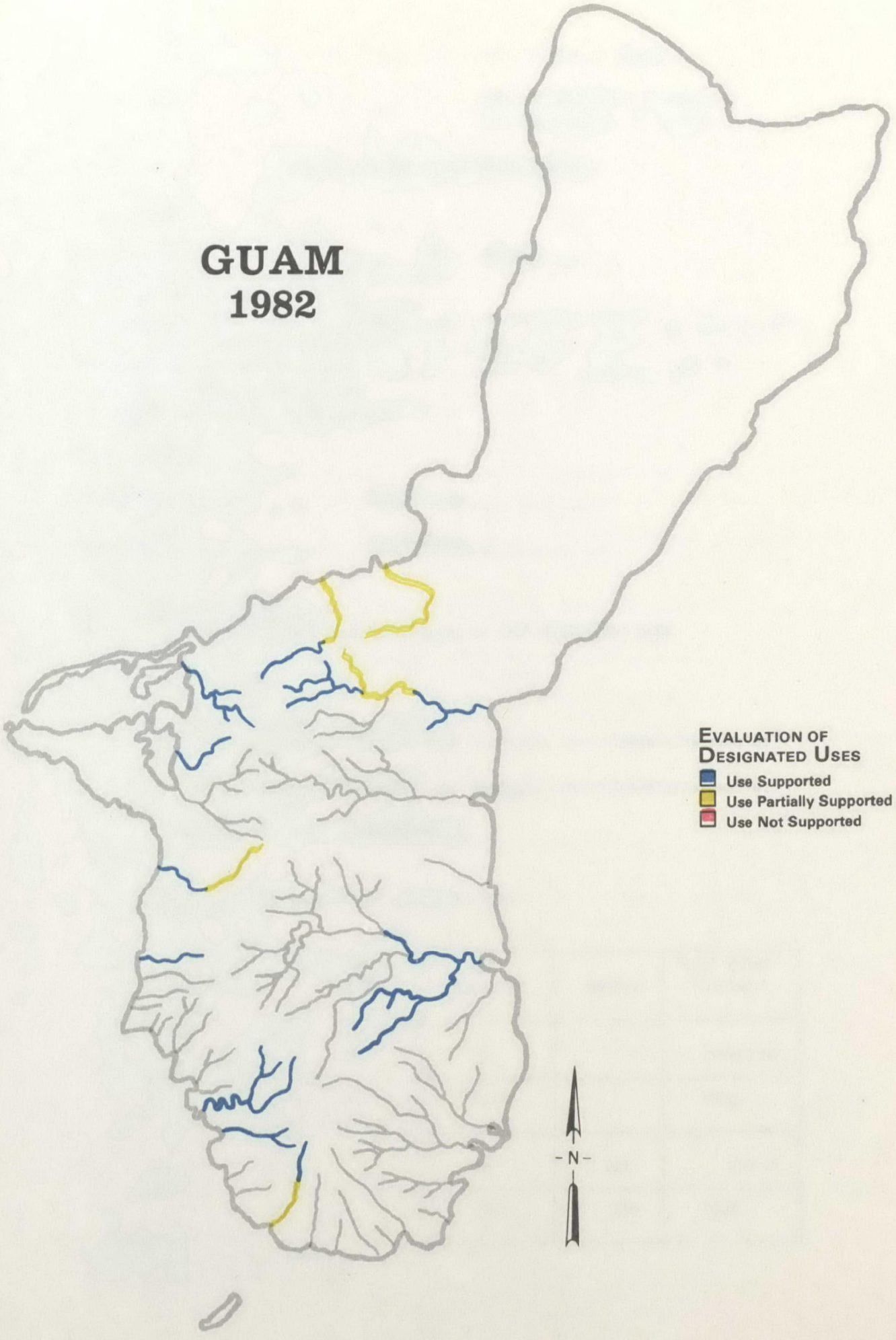
_____ - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Guam Environmental Protection Agency

CONTACT PERSON & PHONE #: James B. Branch, 011-671-646-8863

DATE: August 12, 1983

GUAM
1982


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

State of Hawaii*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 769,913 1980 964,691
State Surface Area 6,450 sq. miles
# of River Systems/Basins 4
# of River and Stream Miles unknown mi.; # of Border Miles* 0 mi.
# of Lakes and Ponds and Acreage _____/_____ac.
# of Marsh or Wetlands ac./sq.mi. _____ac. or 25 sq. mi.
# of Coast Miles 750 mi.
# of Estuary sq. mi. 30 sq. mi.

*Border Rivers:

Name/Mileage _____ Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 260
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: undetermined

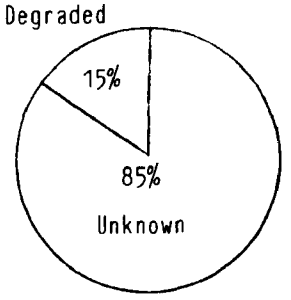
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	36.4 mi.	184.6	39		**260 mi.
	14%	71%	15%*		100%
1982	mi.		39	221	260 mi.
	%		15%	85%	100%

*Channelized streams & rivers
**Major rivers/streams in Hawaii

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	--	--
Miles Degraded:	39	--
Miles Maintained:	--	
Unknown:	221	

B. Lakes and Reservoirs (Not Applicable - no publicaly owned lake or reservoirs in Hawaii).

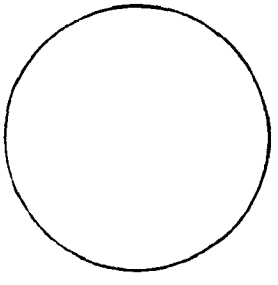
1. a. Acres Assessed: _____
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: _____
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	ac.				ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	30	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	30	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	/
	d. Sq. Mi./Miles Monitored:	30	/

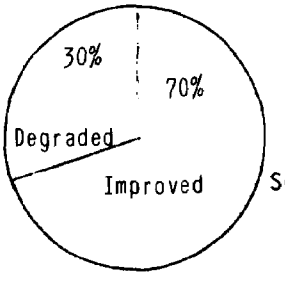
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	7 sq. mi.	7	16		30 sq. mi.
	23%	23%	53%		100%
1982	21 sq. mi.	9			30 sq. mi.
	70%	30%			100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries: Kaneohe Bay = 21 sq. mi.
Pearl Harbor = 9 sq. mi.

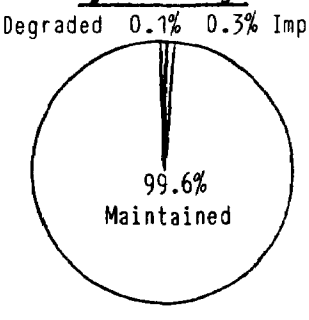
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	21	10
Sq.Mi.Degraded:	9	0
Sq.Mi.Maintained:		
Unknown:	0	

b. Oceans Mamala Bay = 2.0 sq. mi.
Kahului Bay = 2.0 sq. mi.

By Percentage



	Within Category	Change in Category
Miles Improved:	2.0	0.5
Miles Degraded:	0.5	
Miles Maintained:	747.5	
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

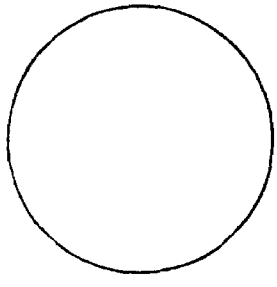
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

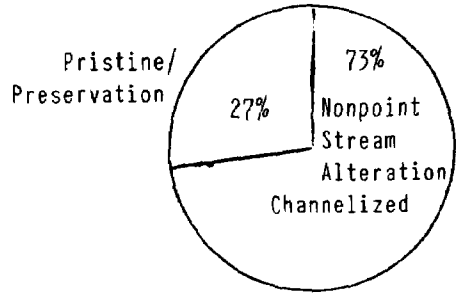


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

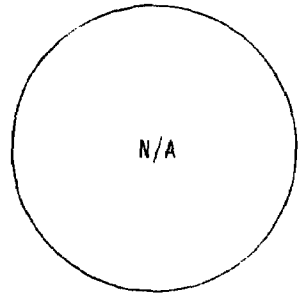
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

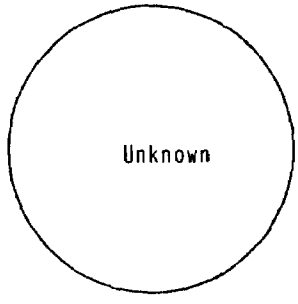
a. Streams and Rivers



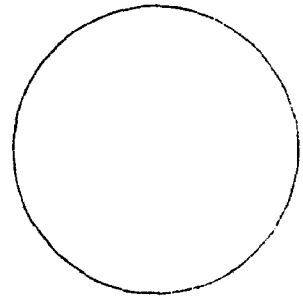
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal									
Industrial							X		X
Non-Point									
Other (inc. natural)									X

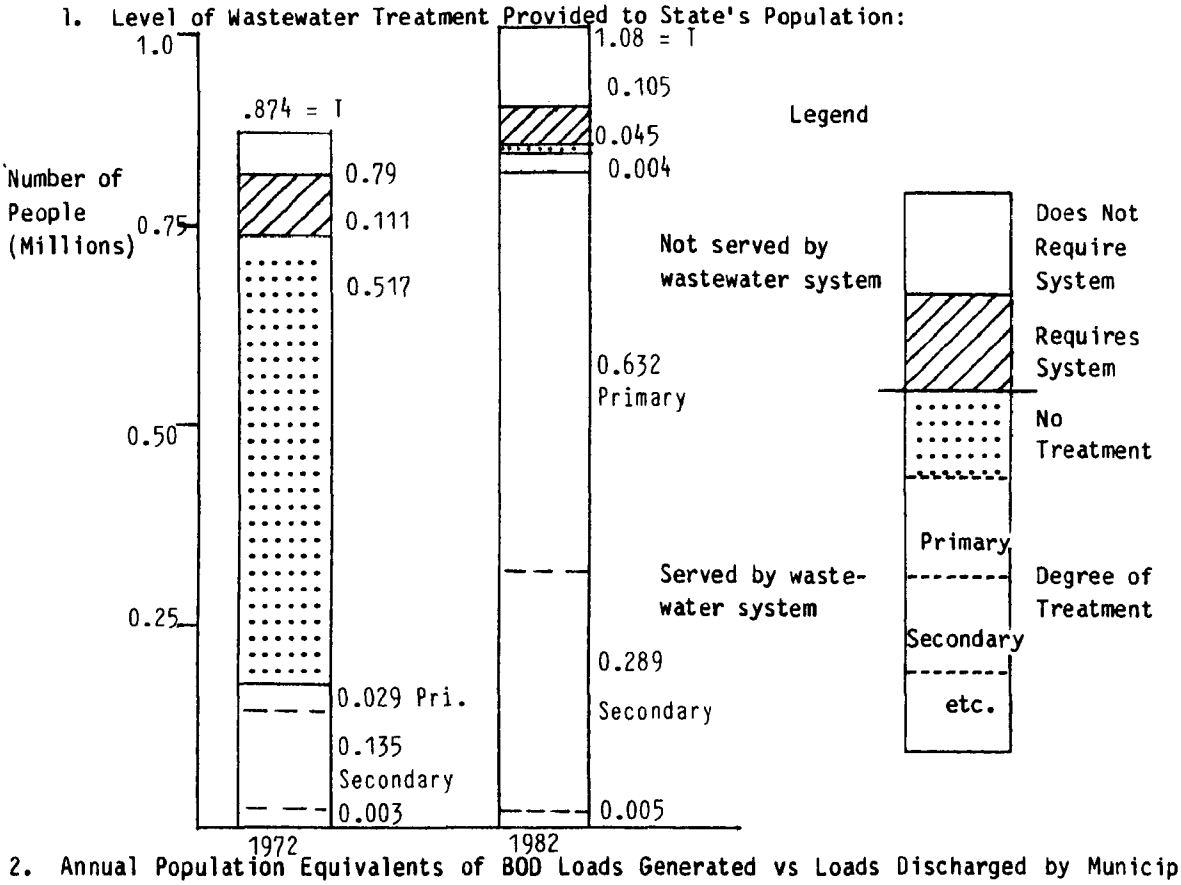
*Number of Stream/River Miles Affected by Toxics:	0
*Number of Lake/Reservoir Acres Affected by Toxics:	0
*Number of Estuary Square Miles Affected by Toxics:	0
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

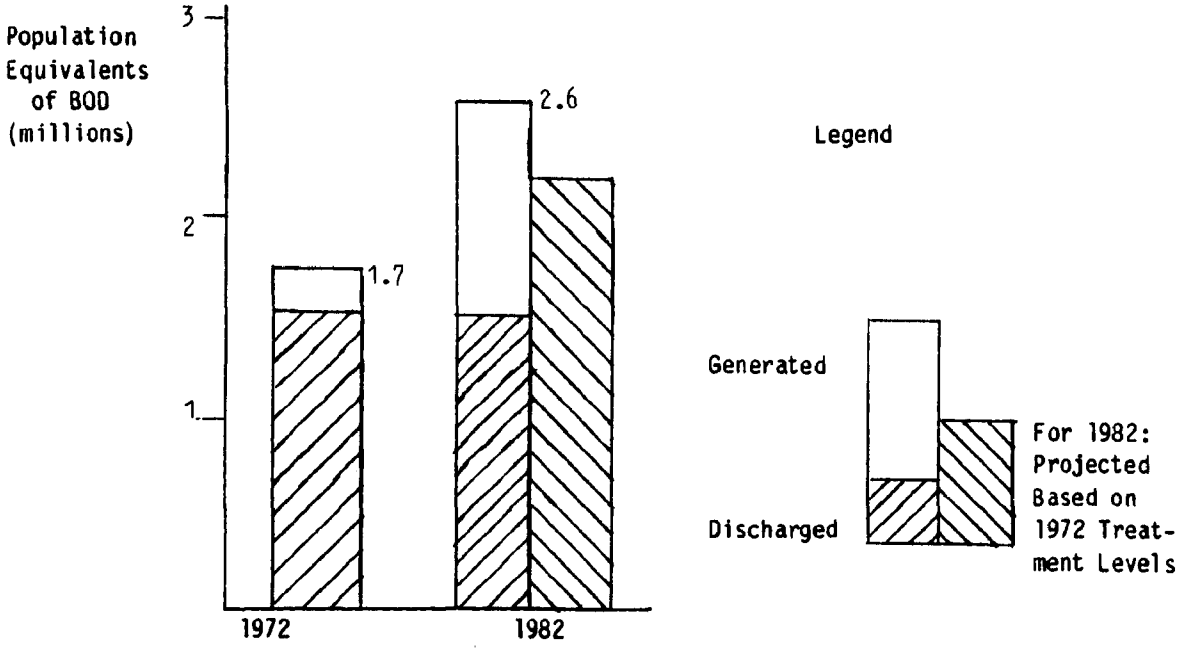
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

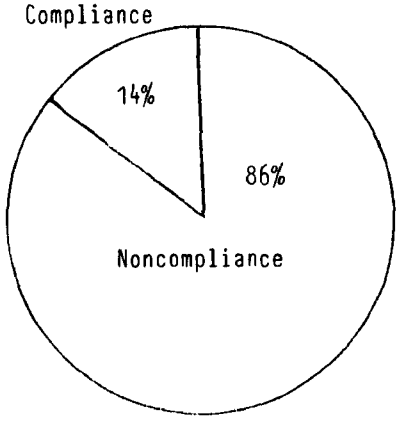
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	7		10	
Facilities Meeting 1982 Permit Requirements+	1		3	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	14%		30%	
Percentage of Flow For Which Requirements Met+			9%	
Facilities Needing Upgrading			see note	19

NOTE: 7 of these facilities discharge into ocean outfalls and have applied for a secondary treatment waiver.

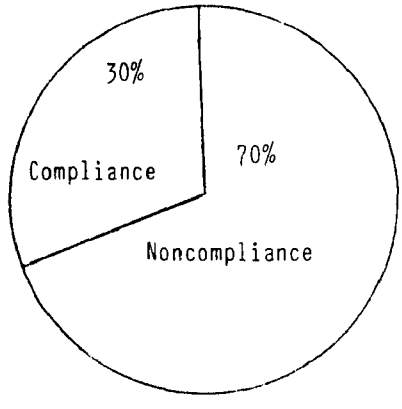
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



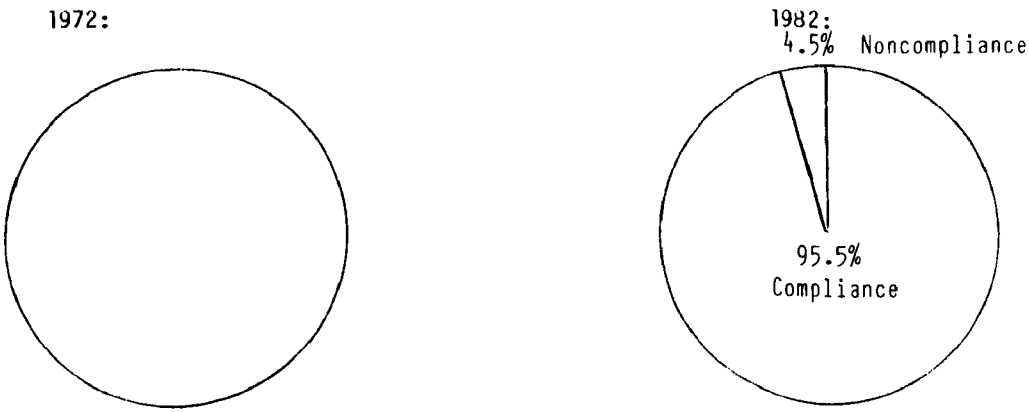
B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits			21	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+			20	
Percentage of Facilities for Which Requirements Being Met			95.5%	
Percentage of Flow for Which Requirements Met+			98.6%	83

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

Erosion and sediment from agricultural runoff is a major type of nonpoint source pollution of concern in Hawaii. Hawaii was one of the first states to enact a law to regulate erosion and sediment. The 1974 Act required each of the four counties to develop their own ordinances to control erosion according to criteria established by the Department of Health. As a result, each of the counties have developed a grading ordinance which requires a permit from the County Department of Public Works for grading, grubbing, and stockpiling.

The Department of Health also established a Technical Committee on Nonpoint Source Pollution Control to help it assess existing and potential runoff problems. The work of the Committee resulted in a report entitled Nonpoint Source Pollution in Hawaii: Assessments and Recommendations (May 1, 1978). This report listed BEST MANAGEMENT PRACTICES (BMP) which would help reduce erosion and sediment problems.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent								
Primary Pollutants								

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Hawaii's water pollution compliance program includes plan reviews/approvals, inspections, notifications, conferences, administrative orders, consent orders, and civil penalities. In 1982, 28 administrative orders, notifications, and civil penalties were served on facilities and for operations in non-compliance with water quality standards and regulations.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

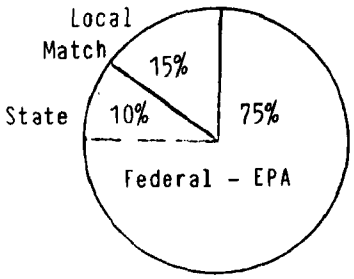
Total Number of Facilities:	8 (private/city/county
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	8
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 322.19 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 241.64 Million
Other Federal:	$ unknown
State:	$ 32.22
Local Match:	$ 48.33
Other Local:	$ N/A

C. Program Activities

Water Quality Monitoring

The DOH performs pollutant source monitoring and ambient water quality monitoring. Pollutant source monitoring refers to the National Pollutant Discharge Elimination System (NPDES). Ambient water quality monitoring is part of the state's Basic Water Monitoring Program and network of fixed monitoring program. The basic objective of the monitoring program is to provide data and information on water quality to ensure compliance with laws and regulation for the protection and enhancement of the beneficial uses.

Construction Grants

The objective of the program is to insure that needed wastewater treatment facilities are properly planned, designed, and constructed in order to eliminate existing problems caused by inadequately treated discharges and to avoid the creation of such problems in the future. Hawaii recently assumed all of the functions that the EPA can legally delegate. State assumption of the Construction Grants Program has streamlined project reviews, eliminated duplication efforts, and maximized state and local responsibility for project management and success.

Permits and Enforcements

The NPDES permit system provides a basis for municipal and industrial discharge permits, monitoring compliance with limitations, and appropriate enforcement action for violations. The State also issues Permits to Operate for sources which do not require an NPDES permit. Many private STPs in the State discharge into injection wells and therefore do not require NPDES permits.

VI. SITE-SPECIFIC SUCCESSES

Mamala Bay

Mamala Bay is located on the south shore of Oahu and has the highest concentration of population in the State including the city of Honolulu and satellite towns of Aiea, Pearl City, Waipau, Ewa Beach, Makakilo, and Pearl Harbor. In 1972 a wastewater management plan was formulated for the island of Oahu with the goal to enhance and maintain water quality through a program of source control and treatment. At this time Mamala Bay was recognized as a water quality problem area. Two separate municipal treatment and disposal systems were built to service this area. The Sand Island facility eliminated nearshore outfalls in the Sand Island-Honolulu area. Advanced primary effluent is discharged into deep oceanic waters. The Honoliuli system was constructed to eliminate municipal wastewater discharges into Pearl Harbor as well as nearshore discharges into Mamala Bay from Military installations.

Kaneohe Bay

Kaneohe Bay located on the windward side of Oahu is the largest embayment in State of Hawaii. With the opening of the Pali Highway in 1960, urbanization of Kaneohe and Kailua began. The Water Quality of the Bay deteriorated. Significant wastewater discharges into Kaneohe Bay were eliminated in 1977 when effluent from Kaneohe municipal plant and Kaneohe Marine Corps Air Station were diverted to an ocean outfall off Mokapu Peninsula.

Kahului Bay

Kahului Bay located on the north coast of Maui is the most populated and urban area of the island of Maui. On the southern portion of the bay is Kahului Harbor, a deep water commercial port. Completion of a 6 mgd sewage treatment plant which serves both Kahului and Wailuku eliminated two raw sewage outfalls into the bay.

Lahaina Bay

Lahaina Bay located on the west coast of Maui is both a resort and a residential area. A 3.2 mgd treatment system completed in June 1980 eliminated the raw sewage discharge into Lahaina Bay and Harbor.

Port Allen - Hanapepe Bay

Hanapepe Bay is located on the southwest coast of the island of Kauai between Hanapepe town and Port Allen. Water Quality problems have been caused in the past by sugar mill discharges, cesspoll seepage, and runoff from other nonpoint sources. Centralized treatment and disposal of raw sewage for the Hanapepe-Port Allen area is important because it will eliminate raw sewage discharge and relieve cesspool failures that result from the location of a major portion of Hanapepe on low lands. In 1977 the initial increment of the Hanapepe-Eleele sewage system was completed and eliminated raw sewage discharge into the ocean from the Port Allen-Eleele area.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The State of Hawaii is striving to preserve the State's unique and excellent water resources while meeting the enormous demands placed on these resources by a rapidly growing population. Unlike most states, Hawaii's water quality problems are mainly those of pollution of coastal waters. The water quality of Hawaii's surface water is excellent near the headwater but accumulates pollutants before reaching the ocean. The State has developed water quality standards, monitoring programs, and point source permit systems in cooperation with the EPA.

Most of the drinking water supply in Hawaii comes from basal aquifers. Protecting groundwater has been and continues to be a special concern for the state. An underground injection program is being developed to prevent injection in areas with good groundwater.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- _____ - Pollution arising from abandoned industrial and/or mining facilities.
- _____ - Pollution from widespread agricultural use of pesticides and herbicides.

AGENCY PREPARING REPORT: Department of Health

CONTACT PERSON & PHONE #: Shinji Soneda (808) 548-6455

DATE: July 27, 1983

State of Idaho*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 721,519 1980 956,247
State Surface Area 83,600 sq. miles
# of River Systems/Basins 6 Basins
# of River and Stream Miles 15,720 mi.; # of Border Miles* 435 mi.
# of Lakes and Ponds and Acreage 1,350 / 508,180 ac.
# of Marsh or Wetlands ac./sq.mi. 72,115 ac. or -- sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage Snake River/435 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

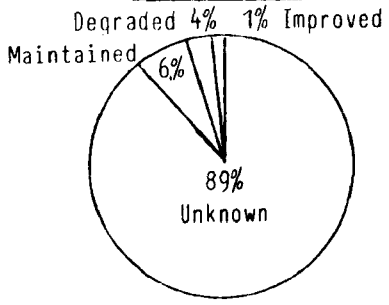
1. a. Miles Assessed: 7,070
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 4,637
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 147
   d. Miles Monitored: 765

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	332 mi.	370	63	6,305	7,070 mi.
	4%	5%	1%	90%	100%
1982	3,975 mi.	2,268	827	0	7,070 mi.
	56%	32%	12%	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	88	0
Miles Degraded:	199	50
Miles Maintained:	428	
Unknown:	6,305*	

* Most of these miles were probably maintained and some even improved. However, lack of 1972 data makes an accurate evaluation of numbers impossible.

B. Lakes and Reservoirs

1. a. Acres Assessed: 465,449

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 362,762

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Acres Monitored: 465,449

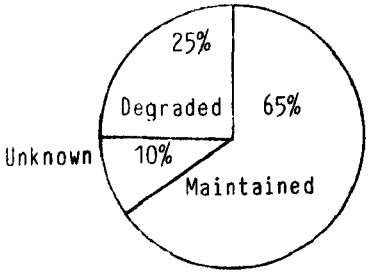
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	371,897 ac.	44,295	0	49,257	465,449 ac.
	79%	10%	0	11%	100%
1982	268,719 ac.	89,615	107,115	0	465,449 ac.
	58%	19%	23%	0	100%

The changes in use support from 1972 to 1982 reflect the greater level of detailed information now available on Idaho lakes.

3. Changes In and Within Use Support 1972 - 1982

By Percentage



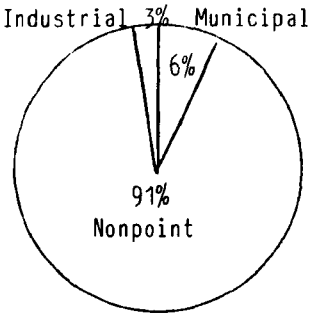
	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	111,789	1,500
Acres Maintained:	302,903	
Unknown:	49,257*	

* The majority of this acreage was probably maintained, but lack of 1972 data makes an accurate evaluation of numbers impossible.

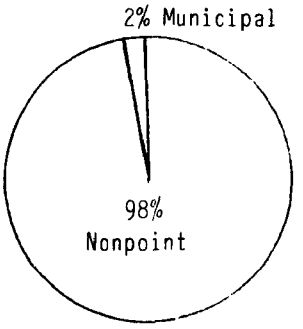
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

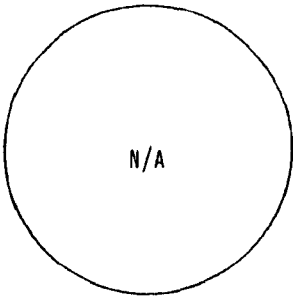
a. Streams and Rivers



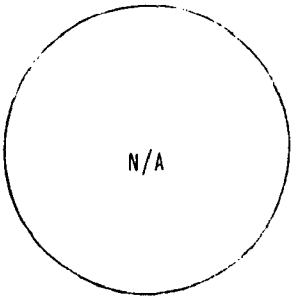
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X		X						Coli., Nut (2)
Industrial		X	X	X	X	X			D.O., Nut. (3)
Non-Point	X	X	X		X	X	X		Nut., Turb. (1)
Other (inc. natural)									

*Number of Stream/River Miles Affected by Toxics: 87.8**
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

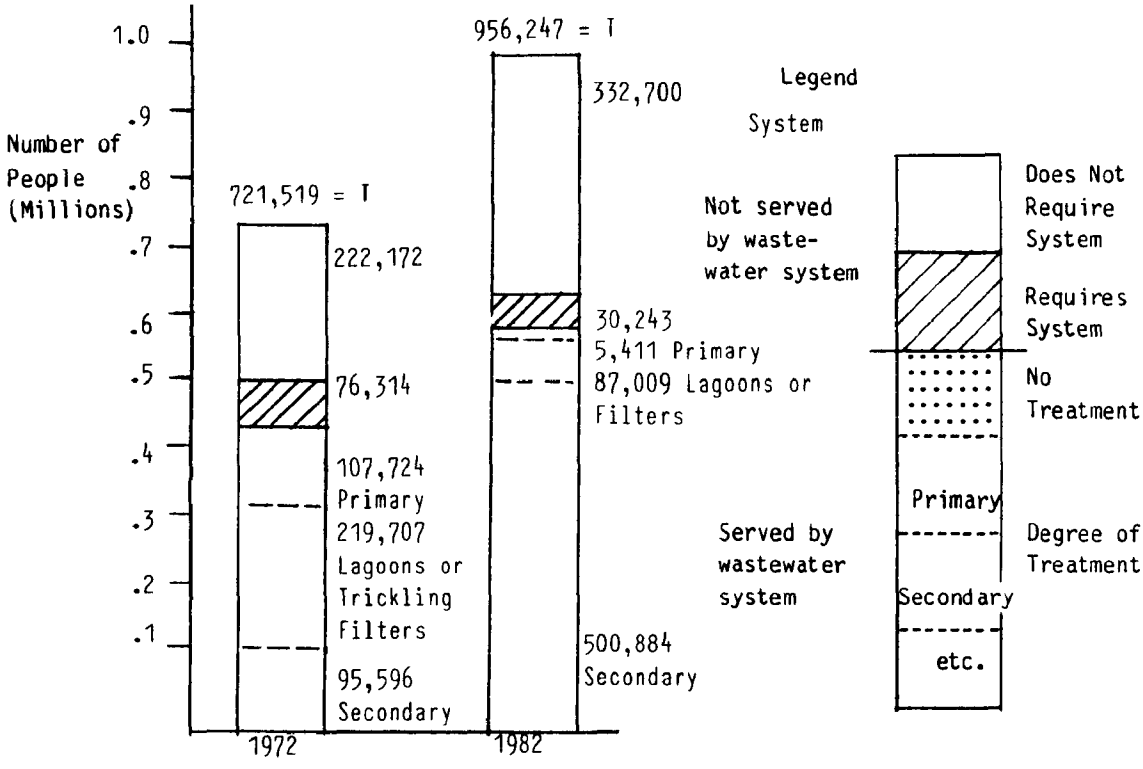
**Heavy metal toxicity in stream segments SB-430, PB-140S and PB-20S

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

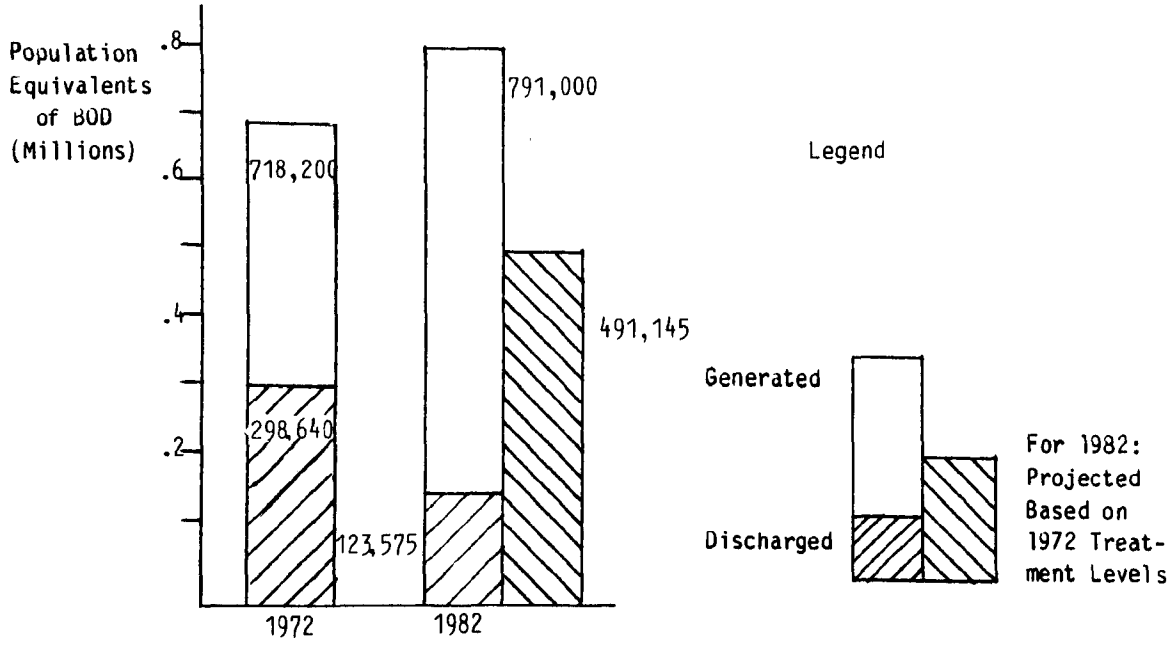
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

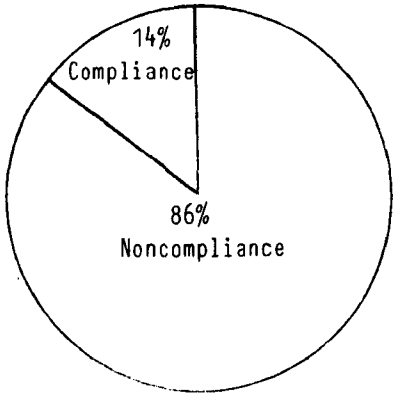
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	7	19	
Facilities Meeting 1982 Permit Requirements+	5	5	18	Total Permits in Effect in 1982 41
Percentage of Facilities for Which Requirements Being Met	26%	71%	95%	
Percentage of Flow For Which Requirements Met+	14%	70%	94%	
Facilities Needing Upgrading	14	2	7	

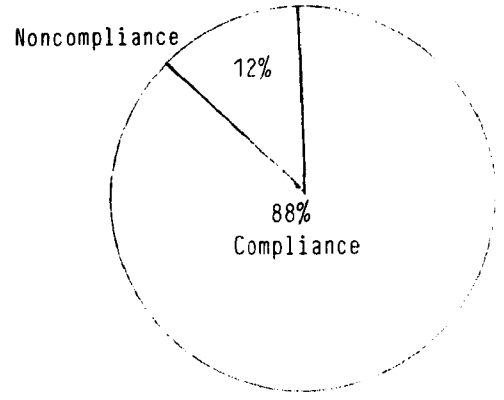
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



*Two from interim permits; one from final permits not in compliance

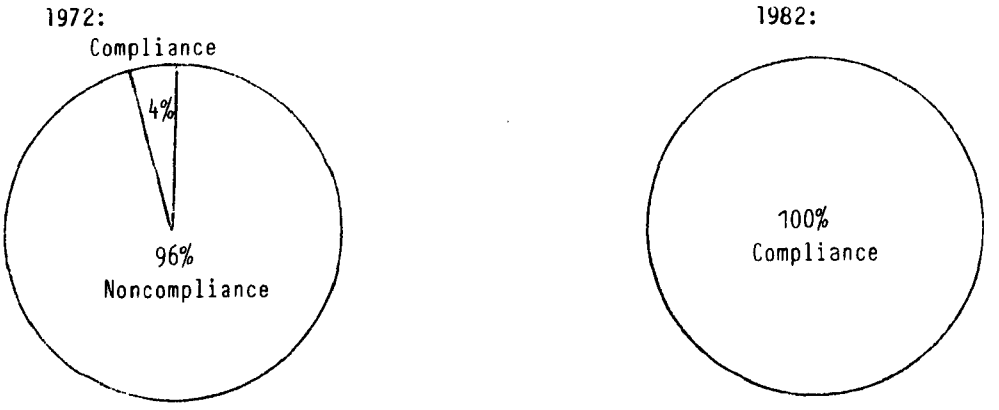
B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	3	20	
Facilities Meeting 1982 Permit Requirements+	1	3	20	Total Permits in Effect in 1982 23
Percentage of Facilities for Which Requirements Being Met	4	100%	100%	
Percentage of Flow for Which Requirements Met+	1	100%	100%	

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

The majority of Idaho's surface water quality problems are associated with nonpoint source activities. Effective nonpoint source control in the state is complicated due to the widespread geographic distribution of nonpoint sources, their highly variable discharge characteristics, and agency limitations on enforcement personnel.

The state water quality standards require application of approved Best Management Practices (BMPs) to control nonpoint source water quality impacts, but "approved" practices exist only for specific activities or geographic areas. Where BMPs are lacking, an activity must demonstrate knowledgeable and reasonable efforts to minimize water quality impacts. In these cases, voluntary BMPs are established, with application encouraged through cooperative and information/ education programs.

Runoff from agricultural lands is the major source of pollutants delivered to Idaho's waters. Agricultural nonpoint sources include irrigation return flows high in sediment and chemicals, erosion from nonirrigated cropland and sediment, and nutrients and bacteria from grazing activities. The state has developed an Agricultural Pollution Abatement Plan which identifies problems associated with agriculture and includes a catalog of best management practices. Voluntary programs are developed in accordance with the Plan and are carried out by local Soil Conservation Districts. In addition, 208 monies were used for planning and monitoring BMP effectiveness on several high priority stream segments. Funds from the State Water Pollution Control Account provide grants to Soil Conservation Districts for technical assistance, informational activities, and cost sharing to farmers who install BMPs in high priority watersheds. In addition, the Agricultural Stabilization and Conservation (ASCS) Program has funded a Rural Clean Water Project on Rock Creek with more than 10,000 acres under cost-share contract and 500 BMPs installed.

Affects of silvicultural activities in the State are severe, but are localized in impact to water quality. Impacts are significant however, since most silvicultural activities occur in relatively pristine, undeveloped drainages. The major problem comes from sediment produced by roading activities. Existing control programs include the Idaho Forest Practices Act (IFPA) and the 208 Forest Practices Water Quality Management Plan. The IFPA applies only to private and state lands and is marginally enforced due to limited manpower. The 208 management plan is applicable statewide, but has yet to be fully implemented.

Past mining activities have also generated impacts on water quality. Affects of sediment and heavy metals on streams are severe in localized areas often affecting pristine streams. Controls on mining activities include voluntary compliance with technical criteria for mining operations; certification and review of 404 and Section 10 permits; and review of engineering design plans for wastewater treatment facilities. The Idaho Surface Mining Act also provides for review of mine reclamation plans, but once again, manpower in this area is limited.

Other nonpoint source activities which affect Idaho's water quality are more moderate and localized in impact. Hydrologic modification has the potential for severe impacts to stream flows and water temperature, especially in Idaho, where there has been a poliferation of small hydropower sites. Cumulative impacts of such development on a drainage may be extensive.

The impacts of construction activities, residual waste/land disposal and urban runoff are all localized water quality problems subject to voluntary compliance with state criteria and guidelines.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	S/W	S/L	S/L	M/L	M/L	N/A	M/L
Primary Pollutants	M,Nut. Sal,SS T	C,LoFlo, Nut,P,SS Temp., T	Nut.,P, SS, T Temp.	M,Nut. pH,SS T	SS,T	LoFlo Temp.	N/A	C,M,Nut. OxDe.

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: State law requires the pursuit of an administrative order as a prerequisite to court action except in cases of an imminent threat to the public health. Usually the terms of a consent decree or compliance schedule are negotiated without holding a contested case hearing. The U.S. EPA issues and enforces all water pollution discharge permits. State actions are to enforce state water quality standards or state design standards for wastewater treatment systems.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

	Non-Permitted Facilities*	NPDES Permitted Facilities**
Total Number of Facilities:	400	3
Number of Pre-Administrative Actions:	10	1
Number of Administrative Actions:	6	4
Number of Judicial Actions:	2	0

* The large total listed includes a broad spectrum of sites that are potential enforcement issues, but that do not have NPDES permits.

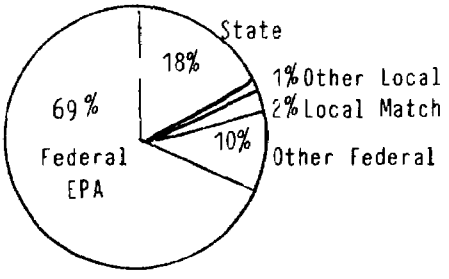
** This column refers to facilities having NPDES permits, as listed in Parts III A and III B. Enforcement actions are taken by U.S. EPA.

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 188.6 Million*

By Percentage



Categories of Sources

Federal - EPA:	$ 130.5 Million
Other Federal:	$ 18.2*
State:	$ 33.6
Local Match:	$ 4.3*
Other Local:	$ 2.0*

*Estimated figures

C. Program Activities

Idaho's water quality program is administered by the Water Quality Bureau of the Department of Health and Welfare's Division of Environment. In the early days of the Clean Water Act the State's program was small and "crisis" oriented; water quality pollution problems were dealt with as they arose, on a case-by-case basis. As funding levels increased, the program became better organized and staffed. Initial management efforts concentrated on municipal and industrial point source pollution. Grants for funding municipal facilities upgraded many operations from primary to secondary wastewater treatment. Industrial and municipal point source discharges were controlled with discharge permits (NPDES program) specifying effluent limits. In addition, in the face of the clean-up goals contained in Public Law 92-500 (Clean Water Act) many Idaho industries began instituting best available or best practical technologies (BAT, BPT) to decrease or eliminate pollutant discharges on their own.

In the mid-70s the State's water program was broadened to cover nonpoint sources of pollution. Monies from Federal 208 grants were used to fund planning efforts designed to develop solutions to water quality problems. The water quality emphasis became, and continues to be, on planning and prevention of pollution. A discussion of various aspects of the state water quality program follows.

Idaho's participation in the Federal Clean Lakes Program has been limited to two projects. A classification of all Idaho's lakes has been conducted, as well as evaluation of pollution sources and development of potential solutions for Bear Lake. Development of a state funded Clean Lakes Project is not a viable consideration at this time; legislative appropriation for a "new" program is highly unlikely in light of substantial reductions in existing program budgets.

All of Idaho's pollution control and abatement programs recognize the public health significance of good quality drinking water sources. The quality of drinking water supplies is protected through application of Idaho's water quality standards and controls, and the delivery of quality drinking water is regulated through application of regulations for public drinking water systems. The State is presently working to develop controls for protection of groundwater from oil and gas storage contamination; to implement a groundwater monitoring program; to increase training opportunities for plant operators; and to improve computer storage abilities to aid in tracking and problem identification in drinking water systems.

The historic emphasis of the municipal construction grants program has been on meeting specific effluent requirements (especially secondary treatment) and on protection of public health. Additional factors which now determine eligibility for project funding include groundwater quality, population, density of development, readiness to proceed, availability of funds, project cost and benefits, and the requirements of the Clean Water Act. The State will continue to assess municipal facility needs and fund high priority projects in an effort to maintain the trend toward improved water quality.

The primary mechanism for control of point source pollution discharges in Idaho is the National Pollutant Discharge Elimination System (NPDES). This program is administered by the U.S. EPA with coordinated review by the State. EPA policy provides for regulation of only "major" discharges, and most of these are covered under the existing program. A large portion of point source dischargers in Idaho, however, are "minor", and the cumulative water quality impacts of these discharges

may be significant. Point sources of special concern that have been largely ignored under the existing program are geothermal wastewater, fish farm wastewaters and discharge from feedlots and dairies. The state is pursuing delegation for the NPDES program, and would attempt to address "minor" discharges under its authorities. The major stumbling block to State delegation of the program is that EPA has determined the State has insufficient penalty authority. The State Legislature has not granted these authorities in the past, so little progress has been made in program delegation. Another major obstacle to program delegation is funding for NPDES program administration.

Control of nonpoint source pollution in Idaho is discussed in detail in Section IV of this report. In summary, nonpoint source activities have a significant impact on water quality in the State. Agriculture and silviculture are particularly significant in their water quality affects. The State attempts to prevent nonpoint source impacts to water quality through an information/education program and to minimize impacts through voluntary compliance with best management practices designed for specific activities.

Planning activities in the State focus on both point and nonpoint source pollution. Municipal and industrial sources have been addressed through study and development of guidelines for land treatment of wastewaters, land application of sludge and recommendations for treatment, and control and effluent limitations for fish hatcheries. Planning projects in the nonpoint source area include extensive work in the area of agricultural and silvicultural pollution control. Projects emphasize development of best management practices, technical guidance documents, and overall planning and management strategies for prevention of water quality impacts.

The State has also begun to evaluate the need for and develop a groundwater quality management plan. Delegation of authority for the Underground Injection Control (UIC) is being pursued as one aspect of groundwater quality management.

Idaho's water quality monitoring program was developed in 1967 to establish baseline conditions to measure progress toward achievement of state and federal water pollution control goals. The program has undergone annual review and revision and has remained essentially a trend monitoring network. A need to reevaluate the entire monitoring program was identified in the spring of 1982, and a detailed monitoring strategy has been developed to move from broad spectrum monitoring to solution oriented monitoring of priority problem areas. This approach enables concentration of diminishing program funds in areas where the greatest benefit in water quality can be derived.

VI. SITE-SPECIFIC SUCCESSES

Studies of Rock Creek, Twin Falls County, Idaho made in the late '50s list sludge banks up to 2 feet deep; red, white, and grey slimes; sacks and boxes of entrails, bones and meat scraps; floating sewage solids; distasteful odors from sewage and decomposing organic materials; grey and white foams; Norwegian rats, black flies and carp; and a "desert" for large aquatic organisms in the stream. A 1959 water quality study recommended removal of pulp waste from sugar processing plant discharges; removal of blood, paunch manure, grease and solids from meat processing plant discharges; removal of whey and other wastes from processing of dairy products; movement of stockyards and feed lots away from the stream; and elimination of septic tank overflow discharges. Companies and municipalities contributing wastes to Rock Creek were notified in 1962 that engineering plans for waste treatment facilities were to be developed. Over the next 20 years, the City of Twin Falls and various industries located along Rock Creek worked extensively to improve water quality, and by the end of the '70s, most direct discharge to the stream had been cleaned up or removed. Wastes are now treated before discharge, or applied to the land; some industrial wastes are treated in the municipal wastewater treatment facility.

Once the point source pollution problems were under control, cleanup efforts turned to the irrigation return flows, which were delivering tons of topsoil and sediment from farms into the stream. In the early 1980's the U.S. EPA provided grant funds to the IDHW-Division of Environment and Idaho Soil Conservation Commission which allowed the Snake River and Twin Falls Soil Conservation Districts to begin intensive water quality planning in the watershed. Following development of a detailed pollution control plan, the District's overall cleanup plans for Rock Creek were submitted for approval under the new Rural Clean Water Program (RCWP) of the USDA Agricultural Stabilization and Conservation Service. Rock Creek was one of 13 projects selected nationwide, and was also one of three projects in the nation to conduct intensive monitoring to determine project success. After two years of monitoring, data indicates that sediment loading to Rock Creek has been reduced up to 80% in sub-basin areas of the drainage where intensive Best Management Practices (BMPs) have been installed. In addition, area farmers' awareness of water quality problems associated with agriculture has dramatically increased, an indication that future management efforts have a good chance of success in the Rock Creek drainage.

In the late 1960's, industrial discharges in the upper Snake River Basin were extensive. Wastewater from food processing plants (potato, sugar and meat) alone discharged wastewater with population equivalents equal to the entire population of the State. Some improvements of these systems were made or initiated in the early 1970s. By 1974, for example, the potato processors had reduced their discharges by 90% from 1960 levels, while increasing production by 485%. With the impetus of the Water Pollution Control Act of 1972 (PL 92-500) and encouragement of the state water quality agencies, all industrial discharges of organic material to the river have been voluntarily discontinued. As of 1982, all major industries have land treatment of wastewater or joint municipal-industrial wastewater systems.

Point source pollution in the upper Snake River Basin has largely been eliminated, and remaining water quality problems are a result of nonpoint source pollution (nutrients, sediment, bacteria) or the affect of numerous dams on the river system (high water temperature, low dissolved oxygen concentrations). Individual projects to correct the nonpoint pollution sources are underway, but results will not be as rapid or dramatic for the point source discharges.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Groundwater quality protection is generally a new area of emphasis nationally, as well as in Idaho. Past water quality management efforts have concentrated on surface waters, with groundwater programs receiving little or no attention. Consequently, there are few definitive management or enforcement policies for groundwater. Recognizing the need for a management strategy, the state developed the Groundwater Quality Management Plan. An initial step in development of the plan was an assessment of present and future groundwater quality and uses in Idaho. In addition, the existing groundwater regulatory mechanisms, programs, and responsibile agencies were addressed, with an emphasis on the deficiencies which exist. Recommendations to cover the areas of deficiency were developed, together with an implementation strategy.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- ___ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

In addition to those projects listed above, areas of future emphasis in Idaho's water quality program will include:

Development of policy and criteria for dealing with oil and gas contamination of groundwater.

Development of design criteria and guidelines for oil and gas drilling fluids disposal.

Development of a policy on geothermal related effluent limitations.

Study of enforcement capabilities and deficiencies in the water quality program.

Development of an overall information and education program for water quality.

Update and revision of silvicultural water quality management plan.

Development of regulations or guidelines for control of pollution from surface impoundments.

Development of a strategy for control of nonpoint source pollution from mining activities.

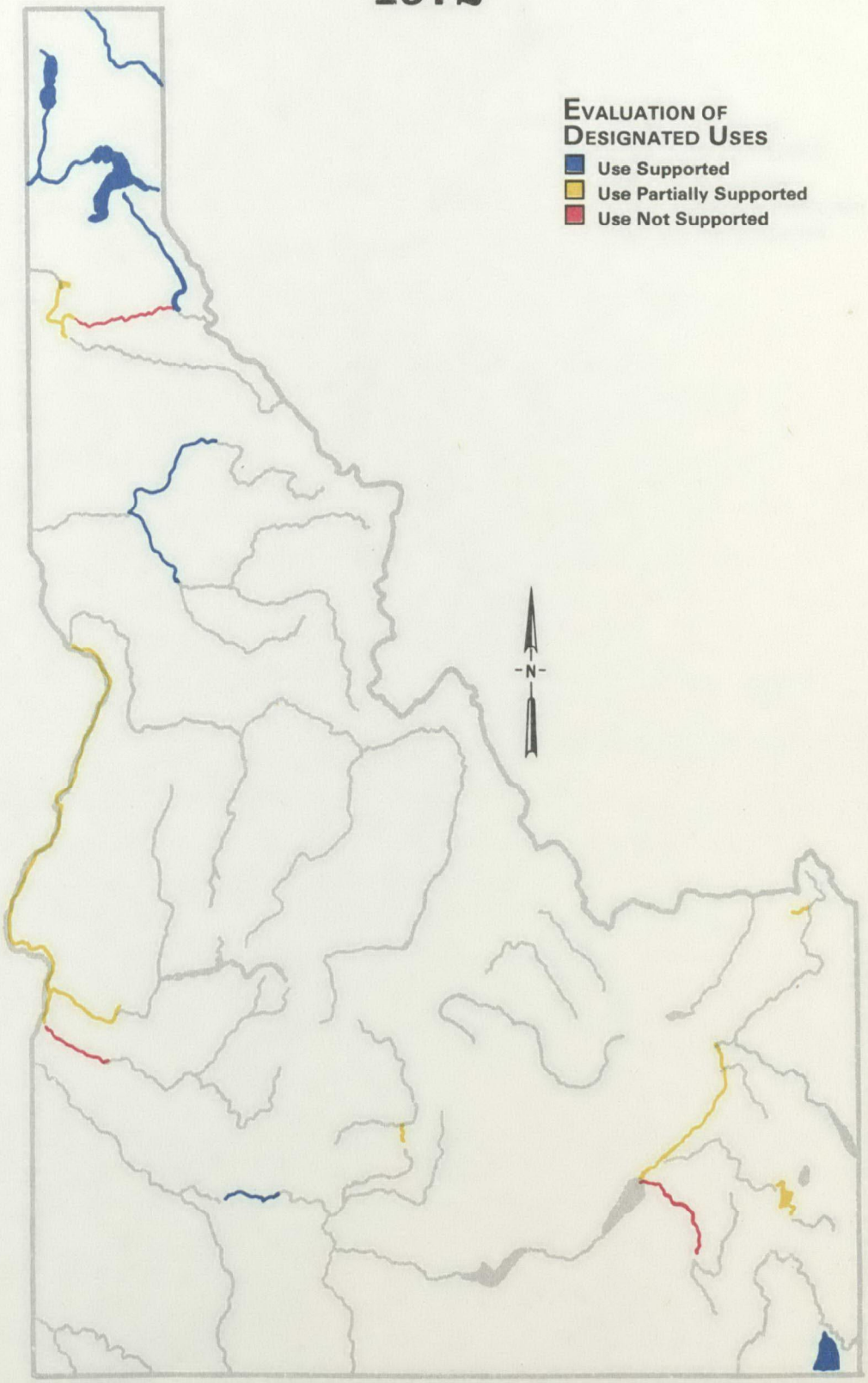
Intensive surveys designed to characterize and provide solutions to water quality problems.

AGENCY PREPARING REPORT: Idaho Department of Health and Welfare
Division of Environment - Statehouse Mail
Boise, ID 83720

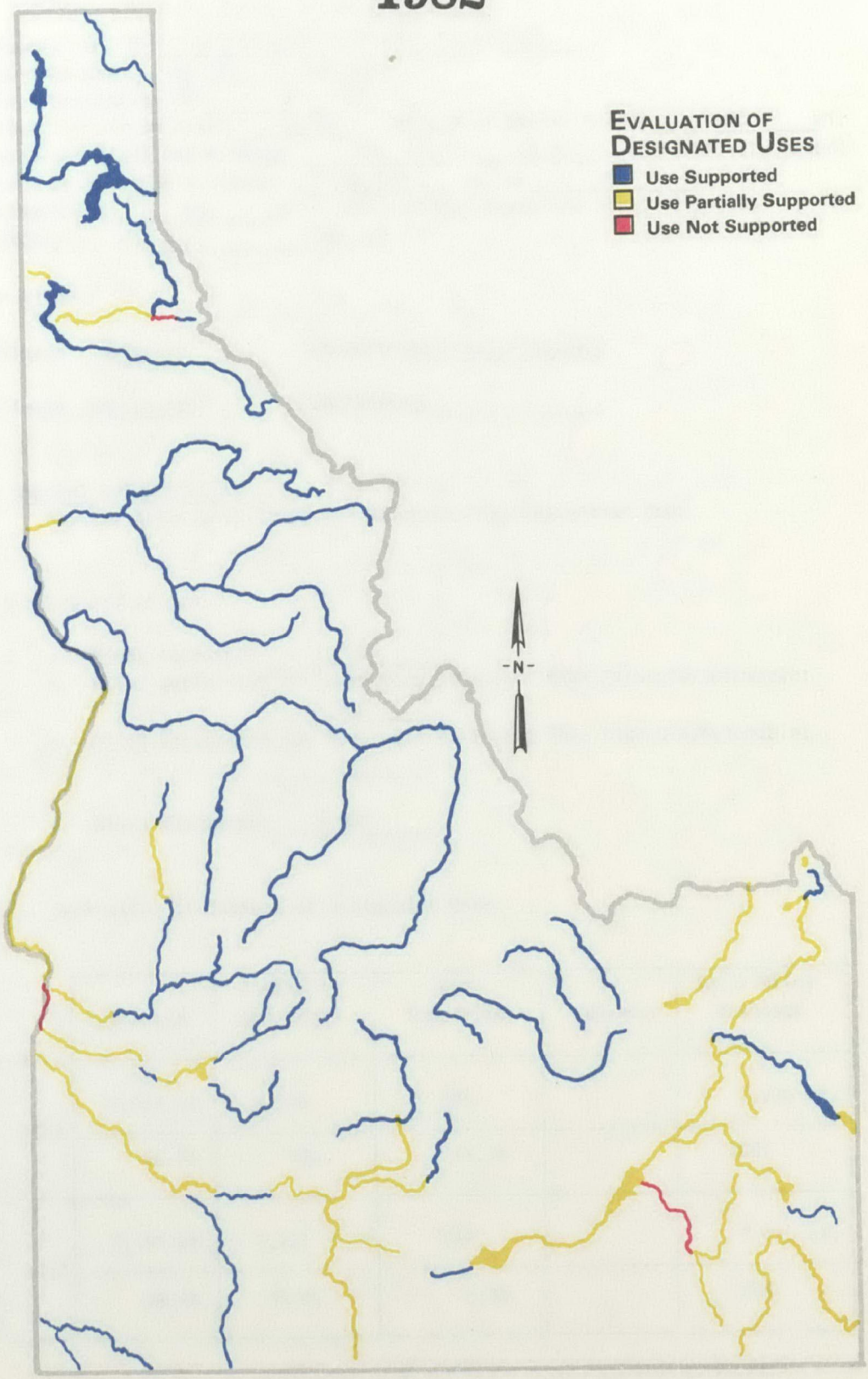
CONTACT PERSON & PHONE #: Susan Martin (208) 334-4251

DATE: September 1, 1983

IDAHO
1972


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

IDAHO
1982


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

State of Illinois*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 11,113,976 1980 11,418,461
State Surface Area 56,250 sq. miles
# of River Systems/Basins 11
# of River and Stream Miles 13,200 mi.; # of Border Miles* 880 mi.
# of Lakes and Ponds and Acreage 870 / 164,061 ac. (Publicly Owned)
# of Marsh or Wetlands ac./sq.mi. 50,000 ac. or 78 sq. mi.
# of Coast Miles 63 mi. (Lake Michigan shoreline along Illinois)
# of Estuary sq. mi. _____ sq. mi.

*Border Rivers:

Name/Mileage Ohio/130 Name/Mileage Mississippi/570

Name/Mileage Wabash/180 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

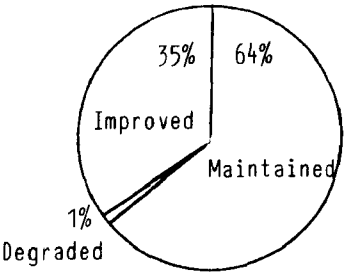
1. a. Miles Assessed: 7,270
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,180
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 162
   d. Miles Monitored: 5,500

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2,523 mi.	3,926	821		7,270 mi.
	34.7%	54%	11.3%		100%
1982	2,792 mi.	4,231	247		7,270 mi.
	38.4%	58.2%	3.4%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	1,454	1,090
Miles Degraded:	--	20
Miles Maintained:	4,706	
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 137,532

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 81,713

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____

d. Acres Monitored: 104,240

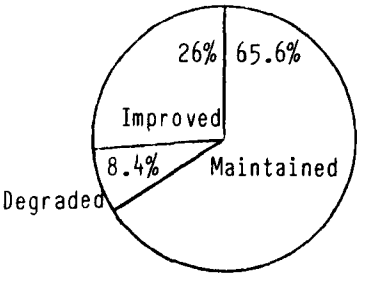
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	18,360 ac.	56,338	28,742	23,979	127,419 ac.
	14.4%	44.2%	22.6%	18.8%	100%
1982	29,965 ac.	106,684	883	--	137,532 ac.
	21.8%	77.6%	0.6%		100%

*10,113 acres of major lakes constructed since 1972

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	--	35,811
Acres Degraded:	--	11,485
Acres Maintained:	90,236	
Unknown:		

C. Estuaries and/or Oceans

Estuaries Oceans

1. a. Square Miles/Miles Assessed: _____/_____

b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable: _____/_____

c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____/_____

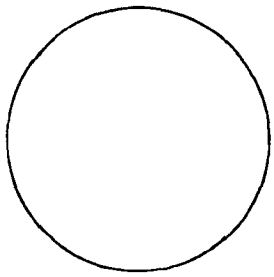
d. Sq. Mi./Miles Monitored: _____/_____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%				100%
1982					
	%				100%

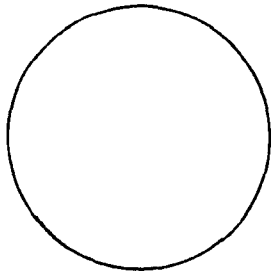
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

D. Great Lakes

1. a. Miles Assessed: 63

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 63

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

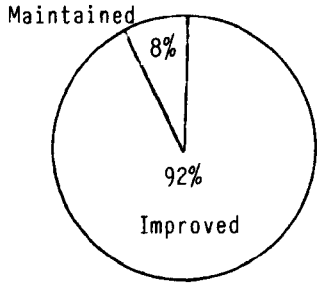
d. Miles Monitored: 48

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	0 mi.	10	53		63 mi.
	0 %	16%	84%		100%
1982	48 mi.	15	0		63 mi.
	76 %	24%	0		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

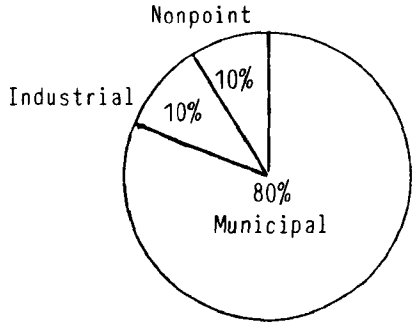


	Within Category	Change in Category
Miles Improved:	--	58
Miles Degraded:	--	0
Miles Maintained:	5	
Unknown:		

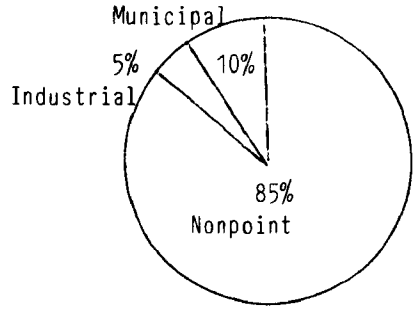
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

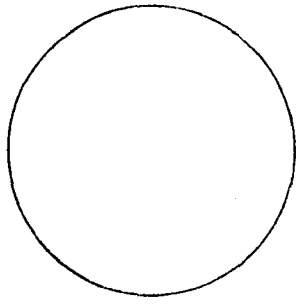
a. Streams and Rivers



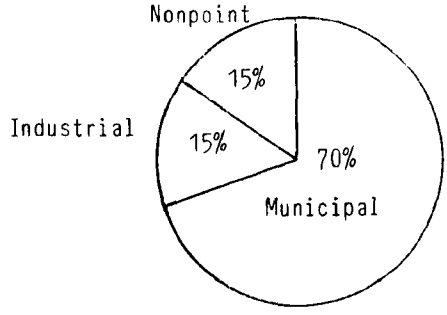
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other *	2 Most Serious
Municipal		X						X	D.O.
Industrial						X		X	Ammonia
Non-Point						X		X	
Other (inc. natural)									

*Other includes TDS, Sulfate, Chloride

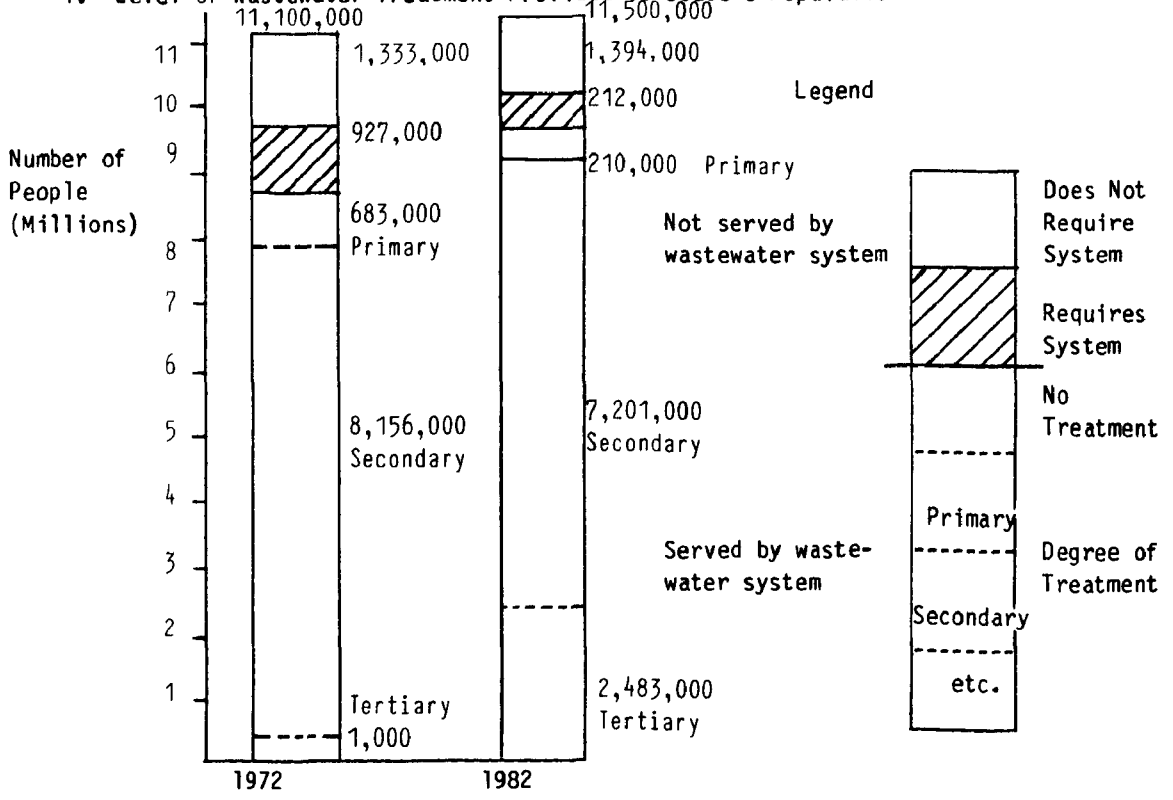
*Number of Stream/River Miles Affected by Toxics: 250 miles
*Number of Lake/Reservoir Acres Affected by Toxics: 8,190 acres
*Number of Estuary Square Miles Affected by Toxics:
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0.3

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

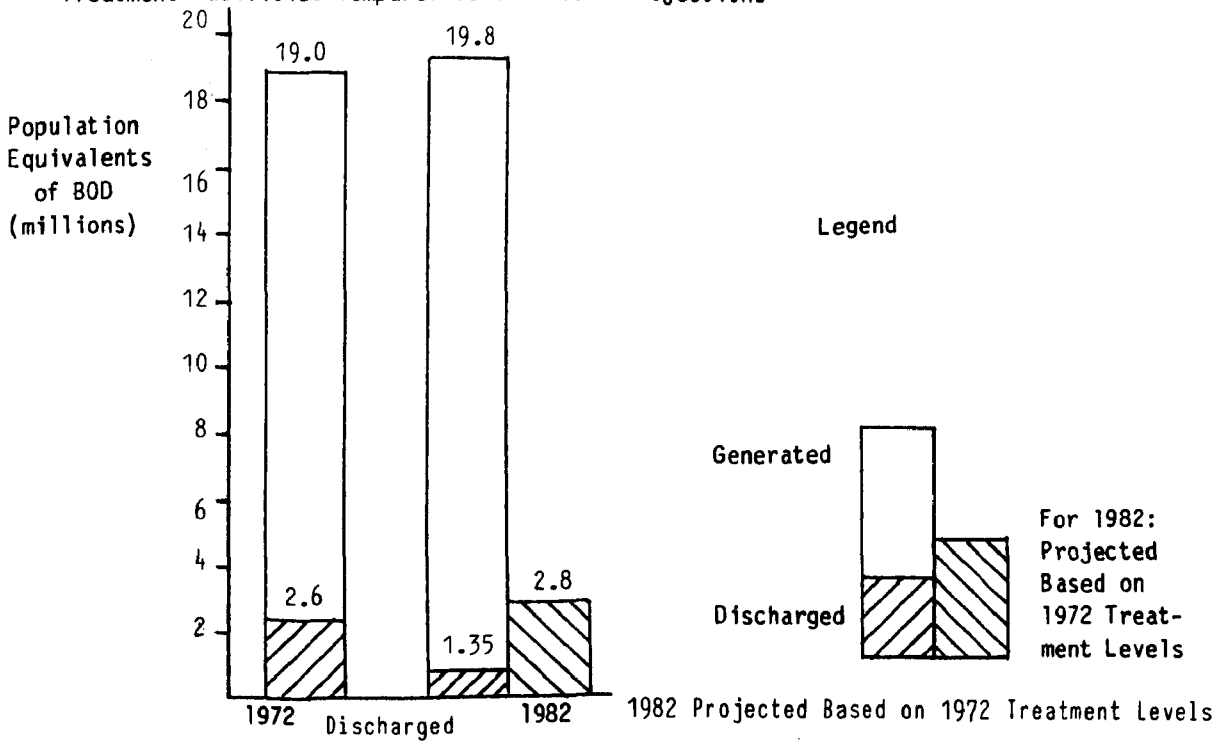
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

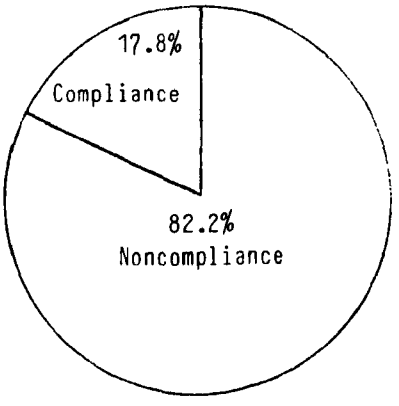
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	168	66	111	
Facilities Meeting 1982 Permit Requirements+	30	61	95	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	17.8%	92%	86%	
Percentage of Flow For Which Requirements Met+	32.7%	98.5%	97.8%	
Facilities Needing Upgrading	165	66	0 - BOD & TSS 27-Nitrification only	753

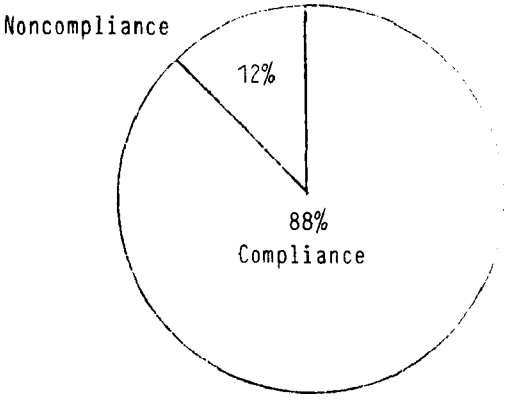
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

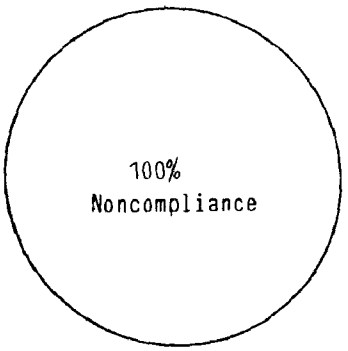
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	88	0	108	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	0	-	99	
Percentage of Facilities for Which Requirements Being Met	0	-	92%	
Percentage of Flow for Which Requirements Met+	0	-	99.7%	1,739

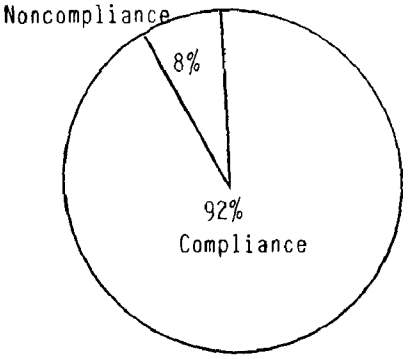
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Two statewide non-point sources of pollution have been identified: agriculture and hydrographic modifications. Streams west of the Illinois River, streams in west central Illinois, and the lower reaches of streams tributary to the Wabash River have the highest turbidity and suspended solids. It is estimated that agricultural non-point sources of pollution account for 316 billion pounds of sediment per year. Hydrographic modifications are a major problem in streams in the Chicago area, streams tributary to and south of the Illinois River, and streams in southeastern Illinois. Five other localized non-point sources of pollution have been identified. Eleven Superfund sites and sixteen hazardous waste sites are located in Illinois.

There have been two Soil Conservation Service (SCS) small watershed programs implemented in Illinois and authorization is being sought for a third plan. Thirteen basin assessments have been targeted. Presently, the United States Department of Agriculture is targeting its efforts nationwide to regions where excessive erosion problems have been identified. Illinois has three selected areas and has proposed two more. A total of 44 counties are included in these five areas.

Two of the twenty-eight Nationwide Urban Runoff Program studies were located in Glen Ellyn and Champaign-Urbana, Illinois. These two projects assessed the effectiveness of wet-detention and street sweeping as best management practices. There are five lake restoration projects underway or completed in Illinois under Clean Lakes funding. More projects are under development.

There have been two implementation assessment programs to show how different agricultural soil conservation practices benefit water quality: Blue Creek Agricultural Conservation Program, Special Water Quality Project in Pike County, and Highland Silver Lake Rural Clean Water Monitoring and Evaluation Project in Madison County.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Brine/Salt	Residuals
Severity & Extent	C S,M,I L (19 CO)*	V S W	V I L (9 Co)	C M-S L (14 Co)	C M-S (24 Co)	R M-S W (53 Co)	C M-S L (45 Co)	R M-S L (15 Co)
Primary Pollutants	T,O Metals TSS,COD	T,O Agri Chem Animal Waste	T	S,T,pH	T	T,O Physical Limitations T, DO	S,T	O PCB Toxic chem tailing wastes

*(Total counties in Illinois: 102)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Agency enforcement process combines facility compliance, field operations, and enforcement activities to encourage voluntary compliance. Written notices of violations are followed by pre-enforcement conferences to promote voluntary action to either correct the violation or agree to a schedule to achieve compliance. Enforcement cases are prepared when voluntary compliance is not expected. Written notice is again provided to offer another opportunity to comply prior to prosecution. If compliance is not achieved, an enforcement package and complaint is sent to the Attorney General's Office for formal filing with the Pollution Control Board or the courts.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

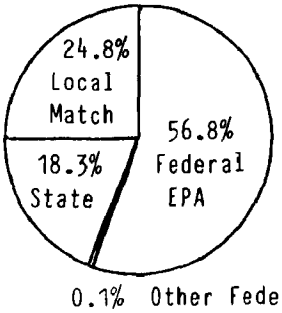
Total Number of Facilities:	96
Number of Pre-Administrative Actions:	74
Number of Administrative Actions:	N/A due to State Law
Number of Judicial Actions:	22

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 3,647.1 Million

By Percentage



0.1% Other Federal

Categories of Sources

Federal - EPA:	$ 2,070.5 Million
Other Federal:	$ 4.0
State:	$ 669.0
Local Match:	$ 903.6
Other Local:	$ --

C. Program Activities

Ambient Monitoring - The program includes analysis of water quality, sediment, habitat, flow, fish tissue and biological monitoring of indigenous aquatic life. Water quality monitoring involves activities conducted by the State directly or by agreements with other agencies to obtain data on the quality of waters of the State. Water quality monitoring activities conducted directly by the IEPA include fixed station monitoring (200 stream sites), intensive stream surveys, lake surveys, and special investigations. Approximately 250 volunteers also participate in the Agency's cooperative volunteer lake monitoring effort.

Planning - The planning efforts are coordinated with federal, state and areawide agencies to achieve better integration of the water quality management program. Major emphasis is given to problem assessments, strategy preparation and refinement, and follow-up of implementation activities. The four areawide and state Water Quality Management Plans were certified in 1979. Since that time, the plans have been consolidated into a single updated state-wide plan.

Permitting - This activity builds upon the ground work laid by the monitoring and planning activities. Utilizing information and direction from these sources and effluent standards and guidance, this activity establishes the basic regulatory tool for controlling pollution sources. The NPDES program was delegated to the Agency in 1977. The toxic industrial strategy is a part of the program.

Construction Grants Administration - This activity supports the regulatory process with respect to municipal facilities. In fact, it is largely this activity that will determine the degree of compliance achieved by most municipal facilities. In recognition of this fact, the State sought and received the first delegation of the federal construction grants program in 1978.

Compliance Assurance - This activity serves to close the loop on the system. This is illustrated in the IMPAAT (Integrated Municipal Program to Achieve Adequate Treatment) developed and implemented by IEPA and USEPA Region V in March, 1981. The primary emphasis is on coordination of grants, permits, enforcement and compliance monitoring. This activity has been successful and will provide a good base from which to develop the national municipal policy in Illinois.

Program Management - This function interrelates with all of the other major program activities. It serves as the central focusing mechanism and is designed to achieve overall program accessibility, accountability and quality assurance. The emphasis is management/administrative, public participation, interagency support and cooperation, and program direction.

VI. SITE-SPECIFIC SUCCESSES

LAKE MICHIGAN

As of 1972, North Shore Sanitary District (NSSD) had six waste water treatment plants organically and hydraulically overloaded. The overloaded facilities were at Lake Bluff, Lake Forest, Highland Park, Waukegan, Clavey Road and North Chicago. Moreover, NSSD had five primary treatment plants discharging 4.2 million gallons of primary treated sewage per day into Lake Michigan. The primary treatment discharges to Lake Michigan were at Lake Bluff, Lake Forest, and three Highland Park plants.

A remedial program was developed and implemented with the assistance of state and federal grants. This remedial program not only diverted several significant discharges from Lake Michigan, but also phased out six smaller treatment facilities through a regionalization effort.

Additional combined sewer overflow remedial work remains; however, the results of the completed work include 58 miles of shoreline water quality improvement. This is evident by a pattern of decreasing levels of phosphate, ammonia nitrogen, coliform, and phenol. Swimming conditions have also improved. Previous frequent beach closings were associated with the discharges into the lake.

The improvement documented above, and continuation of remedial programs, are important in view of the broad spectrum of purposes Lake Michigan serves, which include the source of drinking water for 5 million residents of Illinois.

ILLINOIS RIVER

Prior to 1900, untreated sewage from Chicago was discharged into the Chicago River, which flowed into Lake Michigan. However, Lake Michigan was a public water supply source for the Chicago area and such contamination created a critical health hazard (one resulting epidemic caused some 90,000 deaths). Therefore, by 1900 the Chicago River's flow had been reversed by diverting the flow through the Illinois-Michigan Canal into the Des Plaines River and then into the Illinois River. The effect of this event on the history of the Illinois River was dramatic. Reports of disagreeable results on the character of the river included the following statement: "Masses of sludge floated by so dense that dogs could run across the river; the river had a mingled fish and privy odor and the color of the water was an unnatural gray."

Early pollution control efforts (primary and secondary treatment) reduced the population equivalent of the total combined domestic and industrial waste emptied into the river from 6,211,471 in 1922, to 2,417,000 in 1960. These efforts have continued with substantial federal and state construction grant assistance directed at improving the quality of point discharges to the Illinois River and its tributaries. The remedial efforts associated with additional treatment appear to be strongly linked with the improvement of water quality of the Illinois River.

Improved Illinois River conditions over the past 10 years have been documented in biological surveys and chemical assessments. The findings illustrate 60 to 200 miles of improved stream conditions and enhancement of game/sports fisheries.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Major efforts were made to issue first round NPDES permits and to assume the responsibilities for delegation of the permits and grants programs. The first round permits set compliance schedules for meeting effluent and water quality limits for deoxygenating wastes, and also provided limitations for heavy metals from both industrial and municipal discharges where they were a concern. In addition, a sludge management permit system was established for the proper management and ultimate disposal of municipal sludge.

Special efforts were made to complete the initial water quality management plans. Extensive activities were initiated to respond to non-point source problems. New initiatives were made to develop a lakes program, surface/groundwater programs, and to address water quality/quantity issues. Cross compliance of grants, plans and permits was achieved and included a conflict resolution process.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

Continuing efforts are required to maintain adequate financial assistance, enforcement, monitoring, and evaluatioin. Activity areas include point and non-point pollution problems, combined sewer overflows, and toxics issues. Priority will be given to further develop effective strategies for the major remaining problems. For example, now that the management of point source deoxygenating wastes is in operation, the implementation of a toxics strategy such as the "TEAMS" (Toxics Elimination and Management Strategy) approach will be one of the key programs in the coming decade. Implementation of a lake program strategy will also require special consideration. In addition, efforts will be made to implement the State Water Plan which covers integrated water management by multiple state agencies.

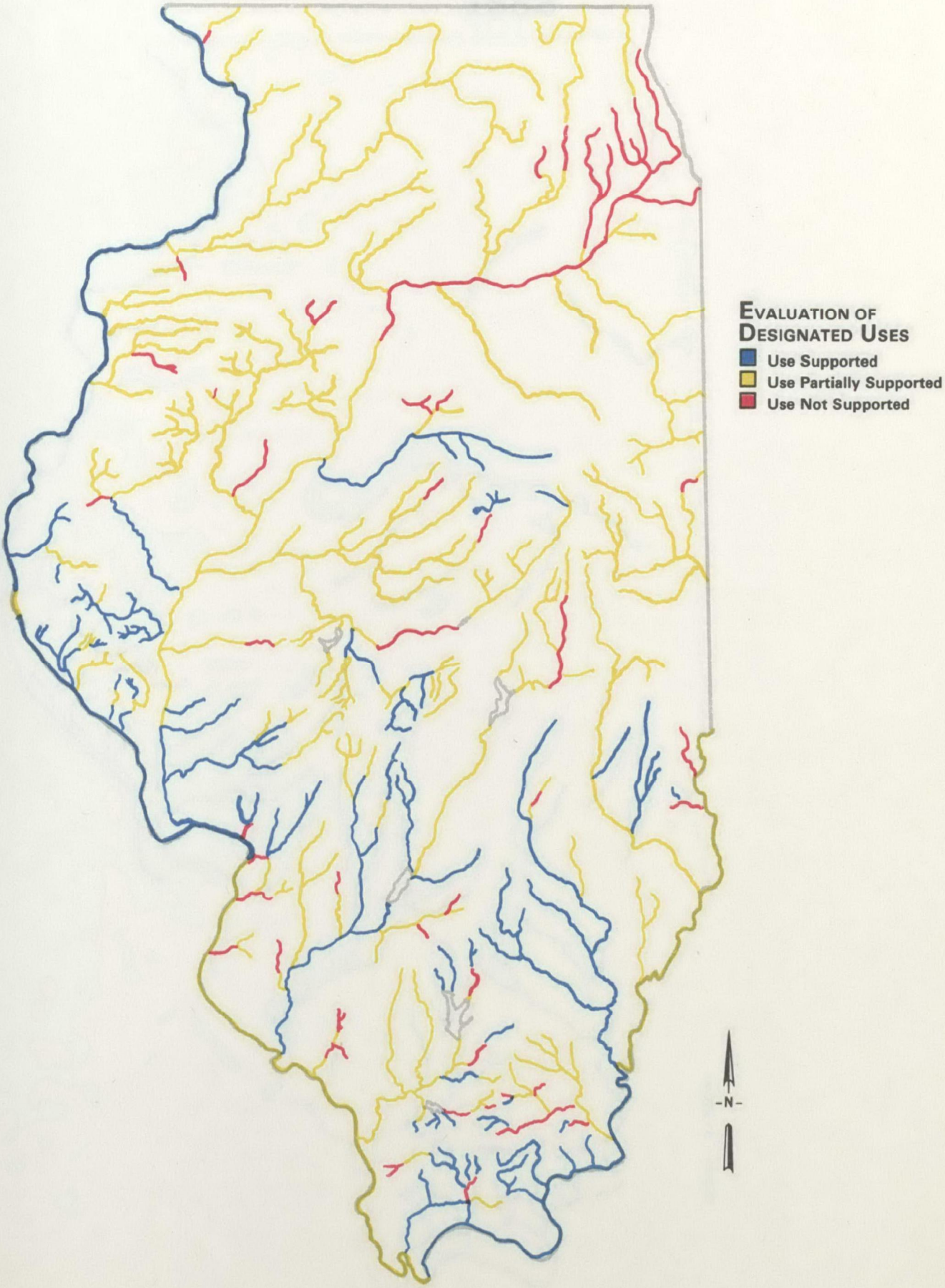
AGENCY PREPARING REPORT: Illinois Environmental Protection Agency

2200 Churchill Rd., Springfield, IL 62706

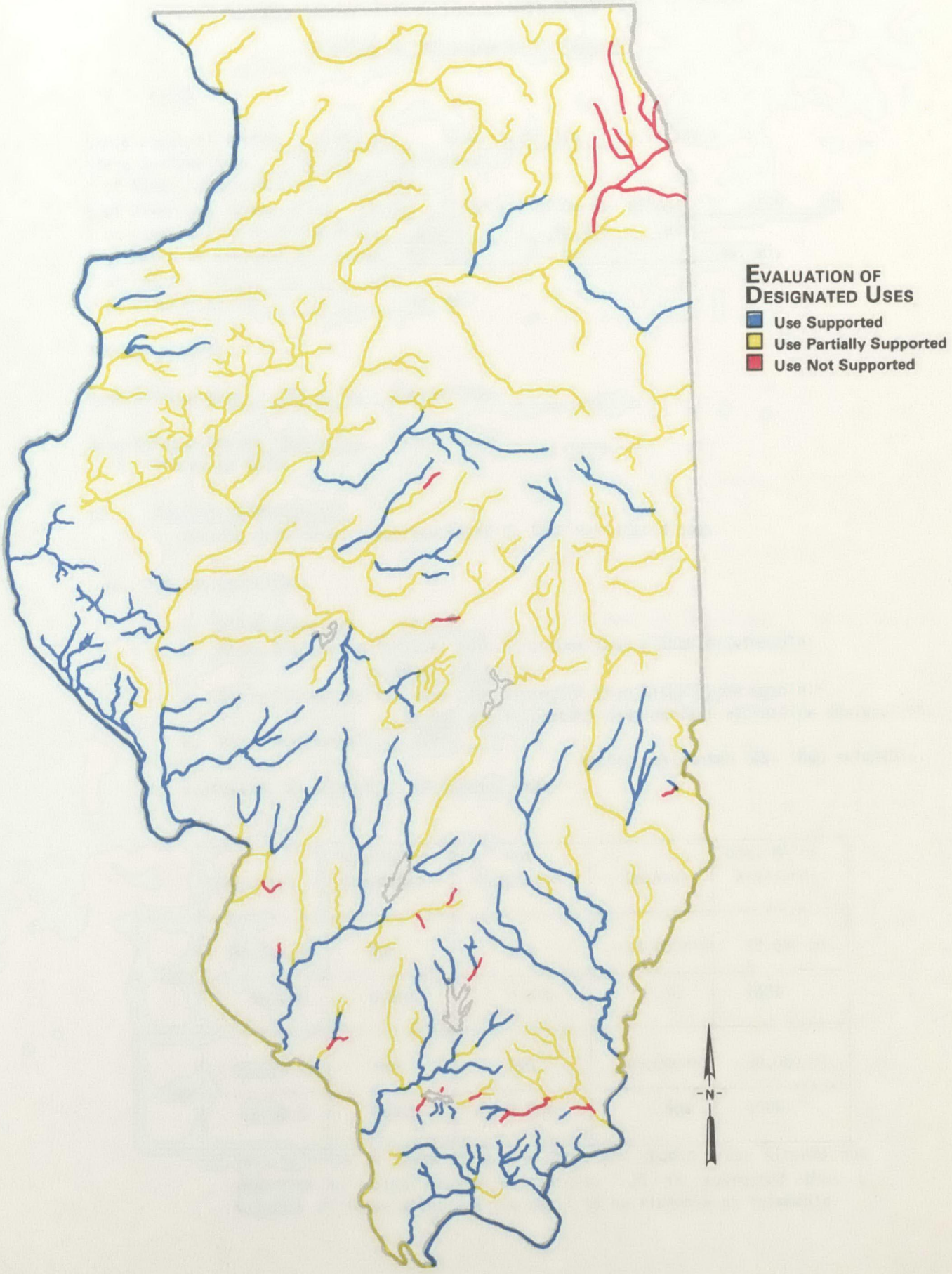
CONTACT PERSON & PHONE #: Robert Clarke (217) 782-3362

DATE: September 1, 1983

ILLINOIS
1972



ILLINOIS
1982



State of Indiana*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 5,195,392 1980 5,490,179 (5.7% Inc.)
State Surface Area 36,532 sq. miles
# of River Systems/Basins 8 basins
# of River and Stream Miles 90,000 mi.; # of Border Miles* 556 mi.
# of Lakes and Ponds and Acreage 520** / 92,800 ac.
# of Marsh or Wetlands ac./sq.mi. 190,000 ac. or _____ sq. mi.
# of Coast Miles _____ mi.
# of Estuary sq. mi. -- sq. mi.

*Border Rivers:

Name/Mileage Ohio 356 miles Name/Mileage _____

Name/Mileage Wabash 200 miles Name/Mileage _____

**over 50 acres

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 90,000
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: at least 125 miles
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable:* 89,000 due to partial body contact recreation designation.
   d. Miles Monitored: 2,055

*Miles designated less than swimmable.

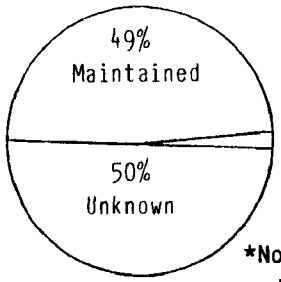
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	43,745 mi.	800	455	45,000***	90,000 mi.
	48.6 %	0.89%	0.51%	50	100%
1982	44,000 mi.	750	250	45,000***	90,000 mi.
	48.89 %	0.83%	0.28%	50%	100%

*** Vast majority of those miles are first and second order streams not impacted by point source discharges. It is estimated that a majority of these miles are too small to be fishable or swimmable.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	356	455
Miles Degraded:	0	0
Miles Maintained:	44,189	
Unknown:	45,000	

*Note: Due to Indiana's unusual hydraulic nature of a state of water origin, and fairly flat terrain there exists a large number of miles of small headwater streams which are not directly impacted by water pollution. This results in very small percentages of miles improved. The two maps showing water quality status in 1972 & 1982 probably gives a better idea on the amount of improvement although it does not take into account improvements on waterbodies not shown on the map.

B. Lakes and Reservoirs

1. a. Acres Assessed: 92,800

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Acres Monitored: no routine monitoring at this time.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	92,800 ac.				92,800 ac.
	100 %				100%
1982	92,800 ac.				92,800 ac.
	100 %				100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

	Within Category	Change in Category
Acres Improved:	Undetermined	0
Acres Degraded:	Undetermined	0
Acres Maintained:	92,800	
Unknown:	0	

C. Estuaries and/or Oceans

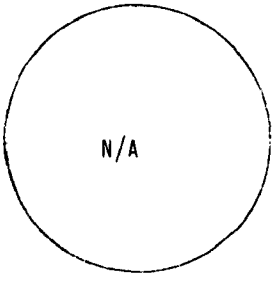
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	_____	_____
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	_____	_____
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	_____	_____
	d. Sq. Mi./Miles Monitored:	_____	_____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%				100%
1982					
	%				100%

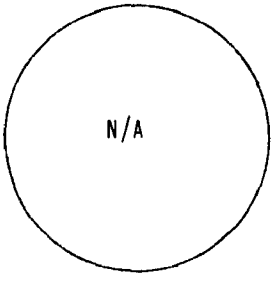
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

D. Great Lakes

1. a. Miles Assessed: 43

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 43 (Public Water Supply)

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0

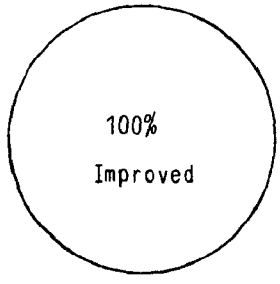
d. Miles Monitored: 43

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	38 mi.	5	0	0	43 mi.
	88 %	12 %	0	0	100%
1982	40 mi.	3	0	0	mi.
	93 %	7 %	0	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

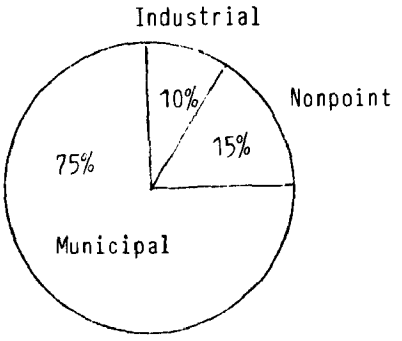


	Within Category	Change in Category
Miles Improved:	41	2
Miles Degraded:	0	0
Miles Maintained:	0	
Unknown:	0	

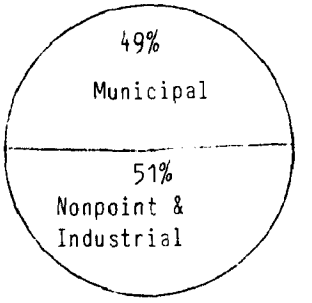
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

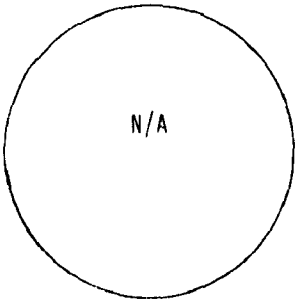
a. Streams and Rivers



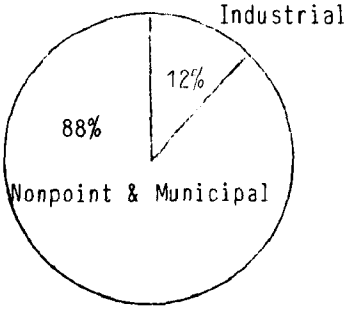
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X							coli,D.O.
Industrial		X			X	X			temp,tox,turb
Non-Point							X		brine oilfield*
Other (inc. natural)				X					& abandoned mines

*Oilfield brine and abandoned mines

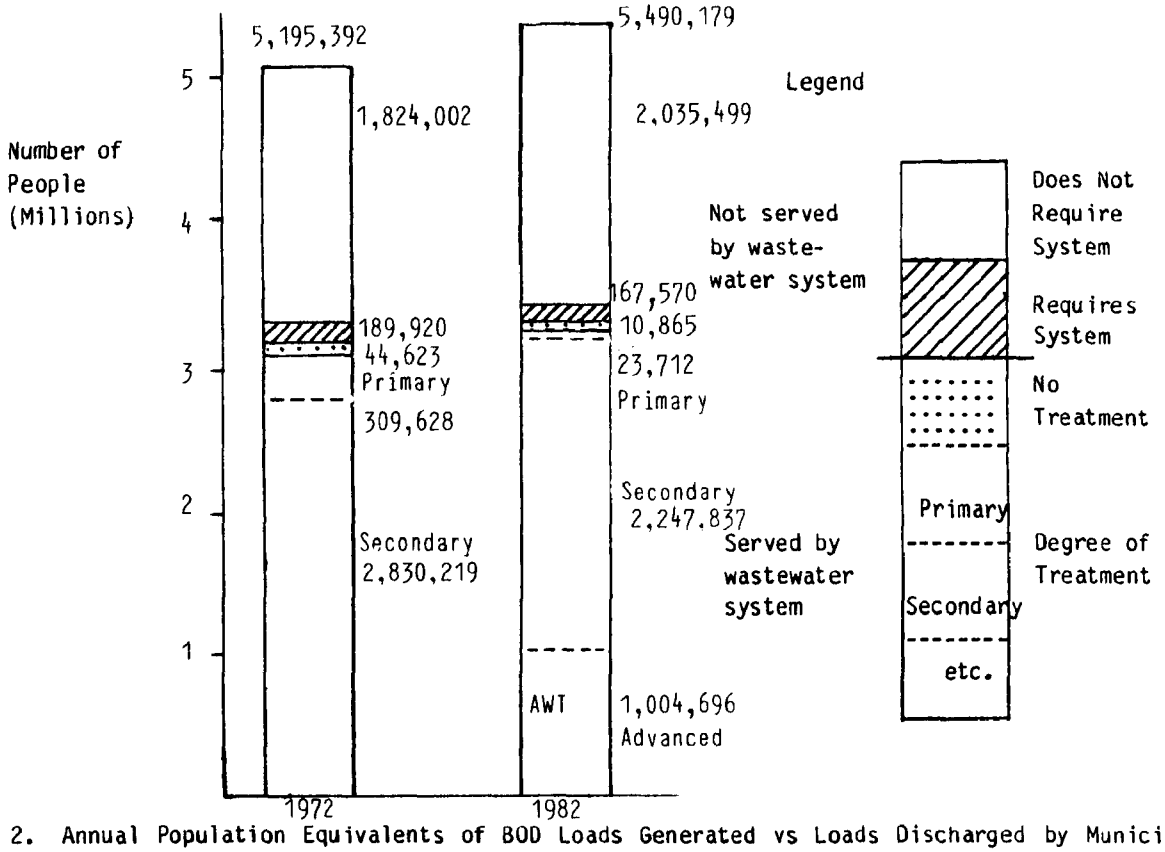
*Number of Stream/River Miles Affected by Toxics: 125
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 43
(impact on quatic life)

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

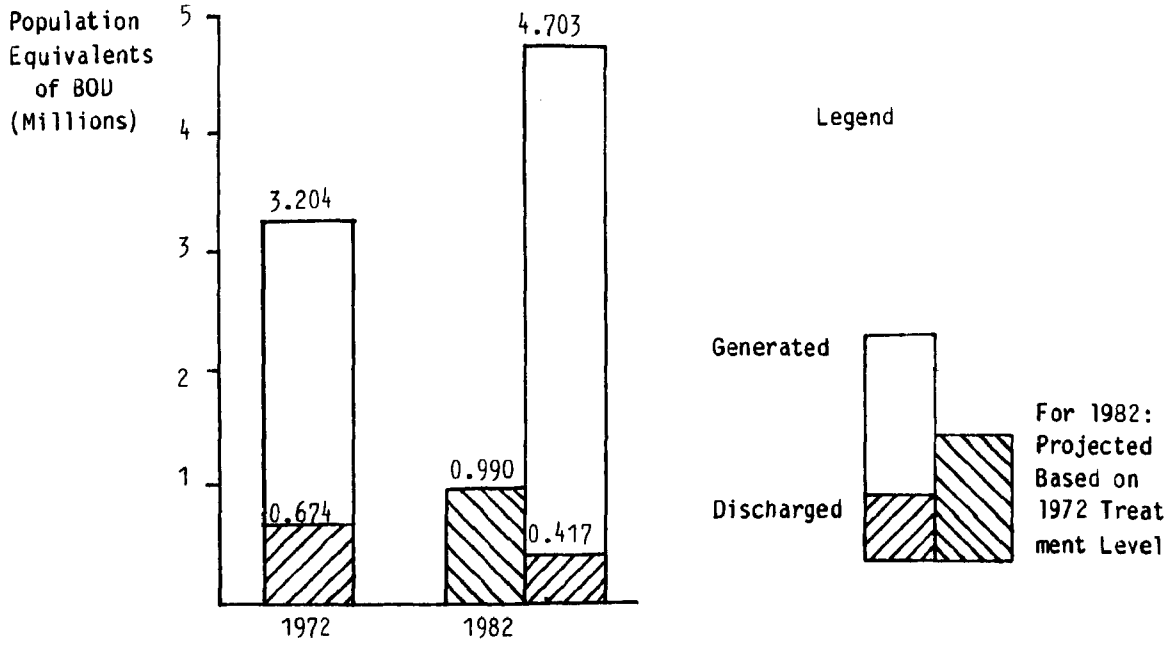
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

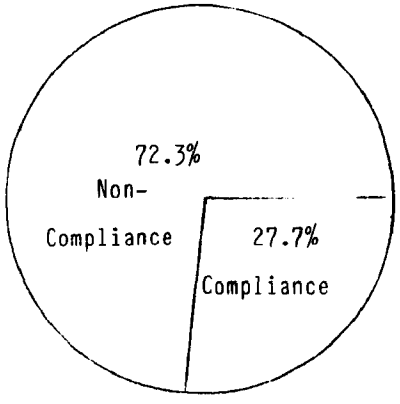
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	94	9	96	
Facilities Meeting 1982 Permit Requirements+	26	9	82	Total Permits in Effect in 1982 450
Percentage of Facilities for Which Requirements Being Met	27.7	100	87.5	
Percentage of Flow For Which Requirements Met+	44	100	81	
Facilities Needing Upgrading	68	8	47	

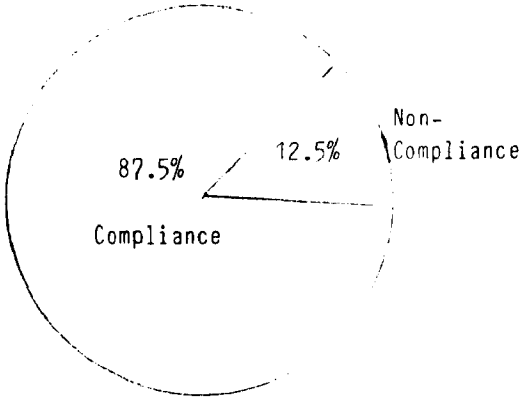
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

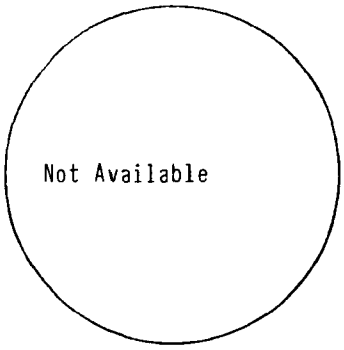
	1972	1982 Interim Permits	1982* Final Permits	
Facilities with Permits	Not		119	Total Permits in Effect in 1982 714
Facilities Meeting 1982 Permit Requirements+	Available		84	
Percentage of Facilities for Which Requirements Being Met			71	
Percentage of Flow for Which Requirements Met+			79	

+Includes "No-Discharge" Facilities

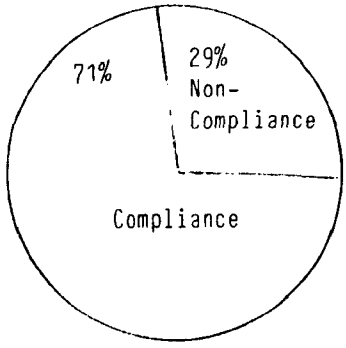
*Information for 1979 permits

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Indiana believes that, to a large extent, nonpoint source pollution still remains undefined and undetermined with respect to measureable water quality and water use impact, and efficacy and practicality of control measures.

While much has been made of sediment borne pollutants (or of sediment itself), little has been documented on the ultimate fate and impact of such pollutants in the aquatic environment.

On the other hand, for contaminants that do present themselves in unacceptable concentrations in fish, such as PCBs and organo-chlorine pesticides (chlordane), we often have no idea as to how they got there or how to reduce concentrations, other than banning their use.

The only documentable non-point source problem in Indiana has been acid mine drainage from long-abandoned surface coal mines in southwestern Indiana, worked and abandoned before State reclamation laws were enacted.

Confined animal feeding operations were controlled from their beginning by requiring storage and controlled land application of the waste. Water quality problems which do arise stem from poor operation or flagrant violation of the Confined Animal Feeding Control Law and the Stream Pollution Control Law.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	I/L	N/A	S/L	I/L	I/L	N/A	S/L
Primary Pollutants	P	SS	N/A	pH	SS	SS,O*	N/A	O**

*O - loss of habitat and shade O** - organic chemicals

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Review of self monitoring data, compliance sampling data, and water quality monitoring and bioassay data by manual and computer means will surface permit violation. When violations are revealed, the choice of which enforcement action is appropriate will be made. The enforcement action taken will ensure the quickest return to compliance by the permittee.

Compliance tracking will focus on significant noncompliance problems at municipal and industrial facilities. Of particular interest will be completed municipal treatment facilities funded under the construction grants program and not able to achieve compliance with NPDES requirements.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	49 *
Number of Pre-Administrative Actions:	17
Number of Administrative Actions:	6
Number of Judicial Actions:	3

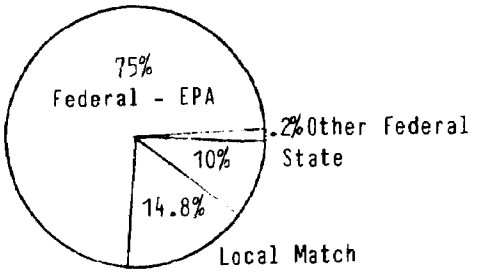
* Exclude state and Federal facilities

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $1,190.85 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 892	Million
Other Federal:	$ 2.34	(FmHA)
State:	$ 120.22	
Local Match:	$ 176.29	
Other Local:	$ unknown	

C. Program Activities

The major changes in the last 10 years have been brought about by the 1972 Amendments to the Clean Water Act, causing the State to gear its programs and staffing toward implementing its requirements. Specifically, this entailed creating a "Planning" group to do basin planning and water quality management. Planning under Sections 303(d) and 208; changing from water quality based requirements to a permit program under NPDES delegation, significant expansion of construction grants staff, creating a water quality modeling unit to do wasteload allocations, and reorganizing the Division to better fit the new functions and conduct of operations.

Existing State programs, such as water quality monitoring, lake studies, intensive stream surveys, emergency response activities, wastewater treatment system plan review and approval, inspections of waste treatment facilities, control of confined animal feeding operations, enforcement actions and operator certification continued.

Construction grant activities are now being consolidated and expanded to receive full program delegation. In addition, pretreatment will be fully delegated.

New activities being proposed are hands-on operator assistance team and a groundwater unit.

VI. SITE-SPECIFIC SUCCESSES

(a) Maumee River at Fort Wayne, Indiana

In early settlement times, the Maumee River supported a fishery that reportedly included extremely large numbers of northern pike, walleye, muskellunge, smallmouth bass and largemouth bass. Population growth and associated industrial development at Fort Wayne which began in the 1830's caused river water quality to deteriorate. Studies conducted in 1894 and 1895 disclosed that northern pike, walleye, muskellunge, smallmouth bass and largemouth bass were no longer present. By the mid 1960's a portion of the Maumee River failed to support any fish life and only the most pollution tolerant species were present at a point nearly 20 miles downstream.

Since the 1970's the City of Fort Wayne has constructed over 135 miles of sanitary sewers, 36 miles of storm sewers and completed construction of a 60 MGD Advanced Wastewater Treatment Facility with phosphorus and ammonia removal. Also completed were stormwater retention ponds. In addition, industries in the area organized a cooperative to contain and clean up spills of oil and hazardous materials.

In 1977 biologists from the State Board of Health found that largemouth bass had reappeared in the Maumee River in Fort Wayne. In 1979 smallmouth bass and northern pike were included in the sample. In 1980 the Maumee River in Fort Wayne contained significant numbers of walleye, northern pike, smallmouth bass and largemouth bass. Except for largemouth bass which had been found in 1941, these species had been absent since before 1894.

Although these results indicate dramatic improvement, success will not be complete until there is better control of combined sewer overflows at Fort Wayne.

(b) Reduced Phosphorus Loading to Lakes, Reservoirs and Susceptible Stream Areas

The Indiana Phosphate Detergent Law and the Stream Pollution Control Board's Phosphorus removal requirements for municipal and industrial dischargers have significantly reduced phosphorus loadings to Lake Michigan, many of the State's lakes and reservoirs and most streams susceptible to algae blooms. Studies have indicated that in some cases the loading has been reduced enough to improve the trophic status of the receiving water body. In others the reduction has been sufficient to prevent further deterioration.

It should be noted that other equally impressive success stories could be presented here if there was no restriction on space.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

(1) Municipal compliance - achieving expansion and at facilities on a timely basis, within the constraints of the Construction Grants Program.

(2) Municipal and industrial compliance in the Lake Michigan Basin (Calumet Area).

(3) Protecting the Salmonid fishing area at Michigan City area.

(4) Pretreatment of industrial wastes discharging to municipal sewers.

(5) Reduction of nutrient input to lakes and streams.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_X_ - Identification and control of toxic pollutants from industrial and non-point sources.

_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_____ - Pollution arising from abandoned industrial and/or mining facilities.

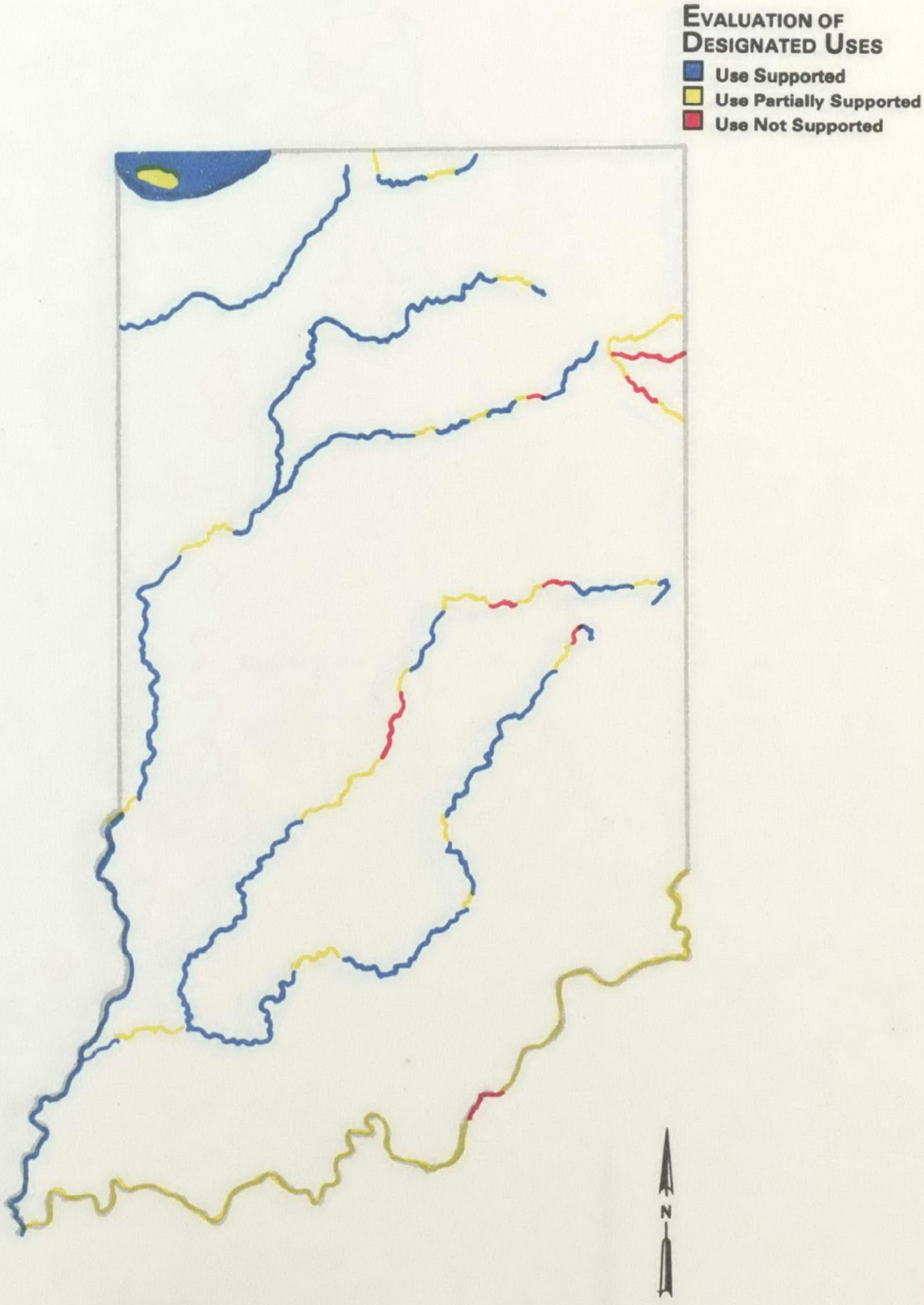
(1) Need significant expansion of laboratory toxics analytical through-put capacity to adequately assess surface and groundwater contamination.
(2) Need to expand the sludge management program.
(3) Carry out industrial waste pretreatment program.
(4) Need to address chlorinated hydrocarbon contamination of fish (source, controllability, cost-benefit, etc.)
(5) Need to provide state hands-on assistance to operators and municipal facilities not providing adequate O & M.
(6) If significant groundwater contamination is found, State will need to develop adequate preventive and remedial programs (for other than RCRA sources).
(7) Lake renovation.
(8) Control of toxic effect of residual chlorine from wastewater treatment plants.

AGENCY PREPARING REPORT: Earl A. Bohner, Director, Division of Water Pollution Control, Indiana State Board of Health

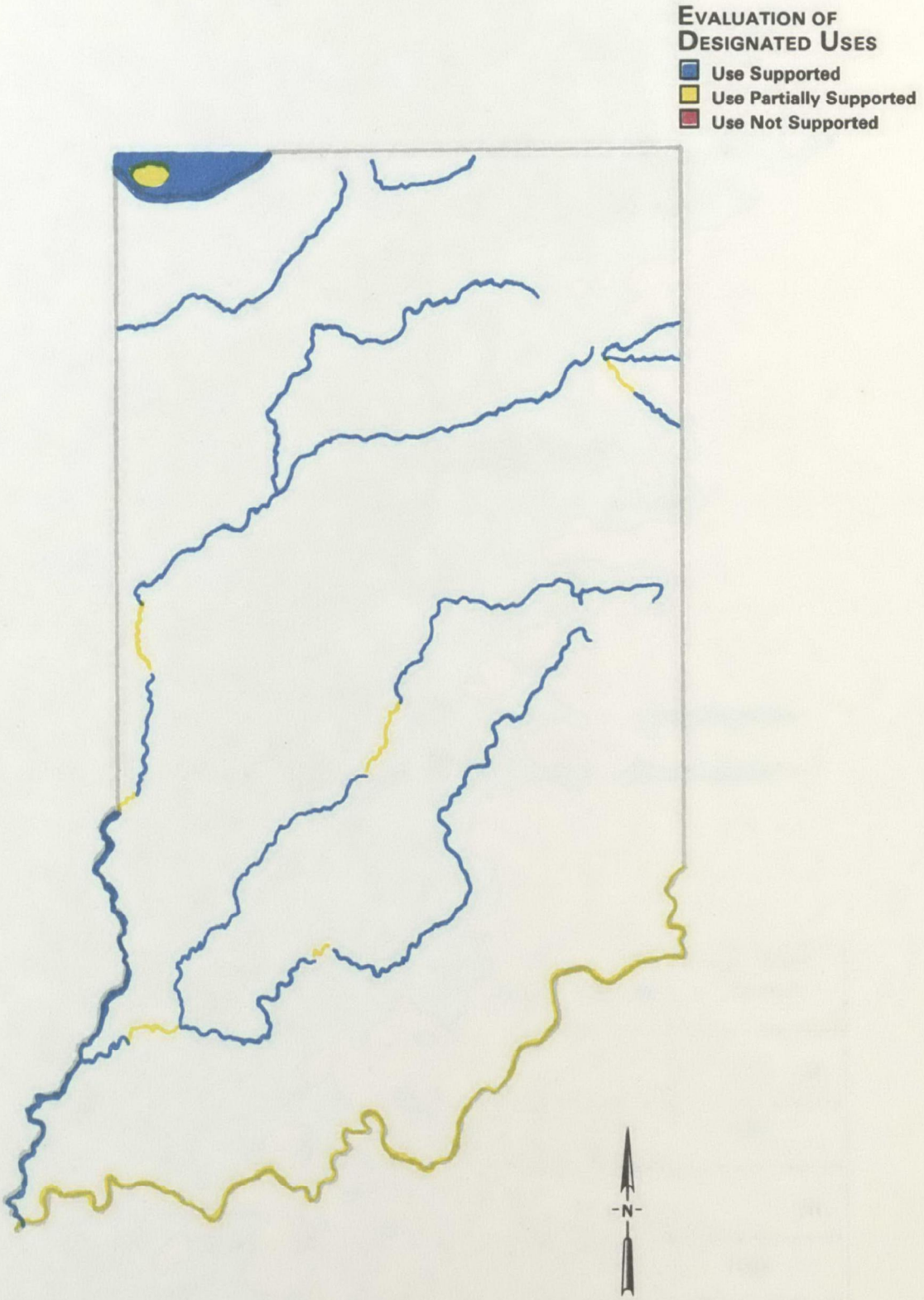
CONTACT PERSON & PHONE #: Steve W. Kim 317/633-0708

DATE: September 1, 1983

INDIANA
1972



INDIANA
1982



State of Interstate Sanitation Commission*

*See Introduction To Appendix For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 16,662,90 1980 15,680,400 (ISD*)
State Surface Area N/A sq. miles (ISD)
# of River Systems/Basins N/A
# of River and Stream Miles N/A mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage N/A / N/A ac.
# of Marsh or Wetlands ac./sq.mi. N/A ac. or N/A sq. mi.
# of Coast Miles 709 mi.
# of Estuary sq. mi. 701 sq. mi.
# of Ocean sq. mi. 96 sq. mi.

*Used 1972 and 1981 data
*Border Rivers:
Interstate Waters/sq. mi.

Name/Mileage Hudson River/8.6 Name/Mileage Raritan Bay/48

Name/Mileage Kills/4.63 Name/Mileage Long Island Sound/225

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: N/A
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: N/A
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: N/A
   d. Miles Monitored: N/A

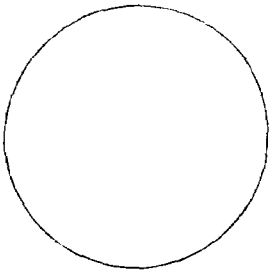
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

*Interstate Sanitation District

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	N/A	N/A
Miles Degraded:	N/A	N/A
Miles Maintained:	N/A	N/A
Unknown:	N/A	N/A

B. Lakes and Reservoirs

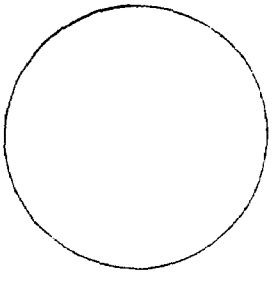
1. a. Acres Assessed: N/A
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: N/A
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: N/A
   d. Acres Monitored: N/A

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	ac.				ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	N/A	N/A
Acres Degraded:	N/A	N/A
Acres Maintained:	N/A	N/A
Unknown:	N/A	N/A

C. Estuaries and/or Oceans

	Estuaries	Oceans*
1. a. Square Miles/Miles Assessed:	797	792
b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	0
c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	86	86
d. Sq. Mi./Miles Monitored:	797	792

*Square miles

2. Evaluation of Support of Designated Uses

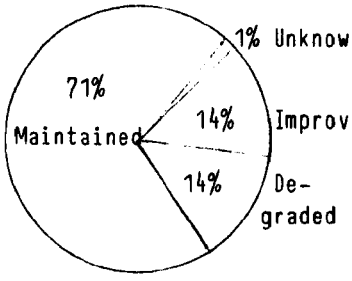
	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
*1972	513 sq. mi.	80	199	5	797 sq. mi.
	64%	10%	25%	1%	100%
*1982	513 sq. mi.	177	102	5	797 sq. mi.
	64%	22%	13%	1%	100%

*Water Year = October 1 to September 30

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

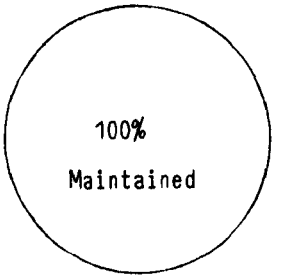
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:		97
Sq.Mi.Degraded:	102	
Sq.Mi.Maintained:	497	
Unknown:	5	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	N/A	N/A
Miles Degraded:	N/A	N/A
Miles Maintained:	96	
Unknown:	N/A	

D. Great Lakes

1. a. Miles Assessed: N/A

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: N/A

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: N/A

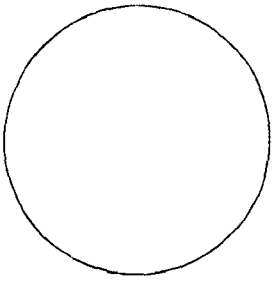
d. Miles Monitored: N/A

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

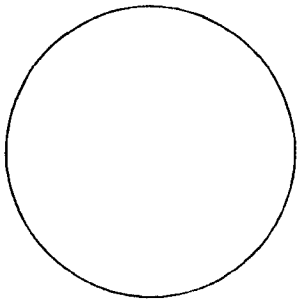


	Within Category	Change in Category
Miles Improved:	N/A	N/A
Miles Degraded:	N/A	N/A
Miles Maintained:	N/A	
Unknown:	N/A	

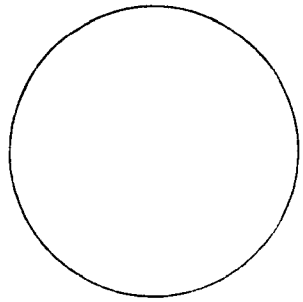
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

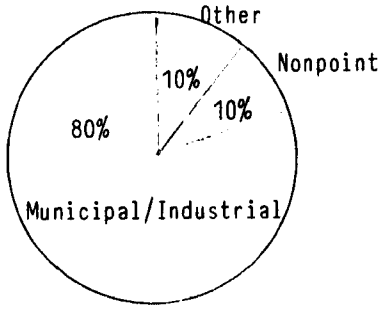
a. Streams and Rivers



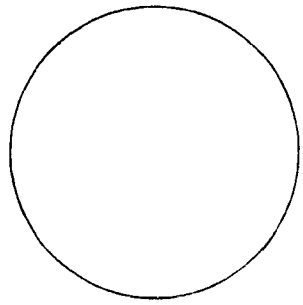
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			X
Industrial		X			X	X			X
Non-Point									
Other (inc. natural)									

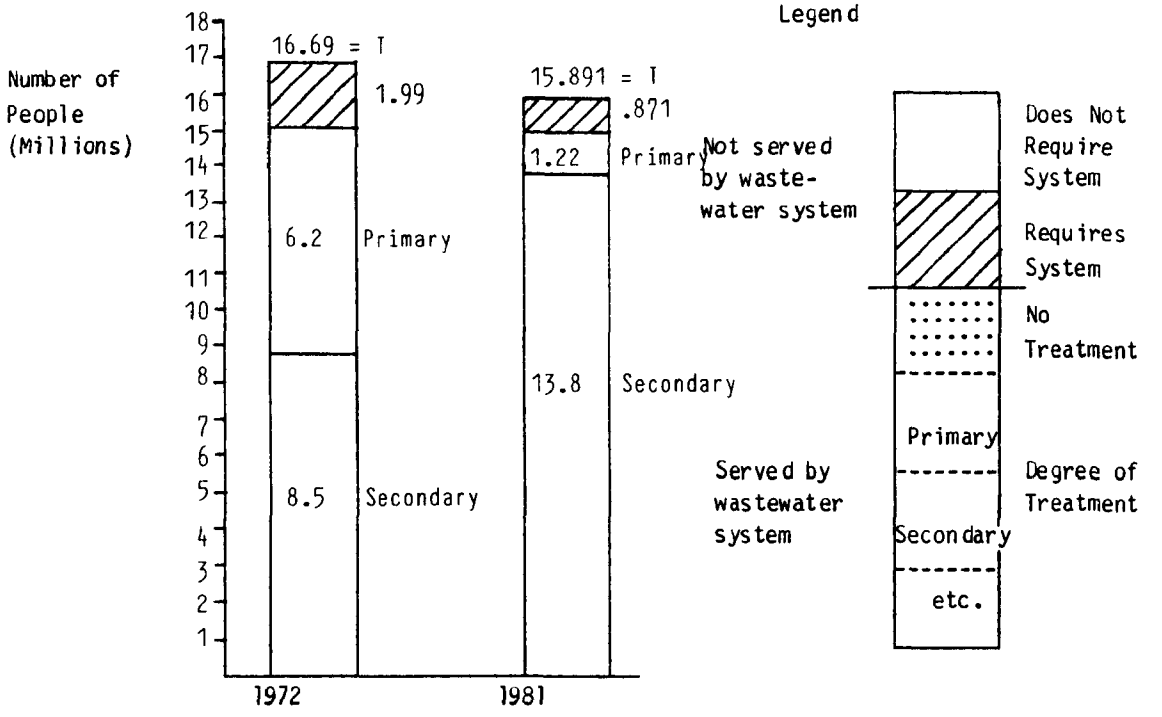
*Number of Stream/River Miles Affected by Toxics: N/A
*Number of Lake/Reservoir Acres Affected by Toxics: N/A
*Number of Estuary Square Miles Affected by Toxics: 701
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 96

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

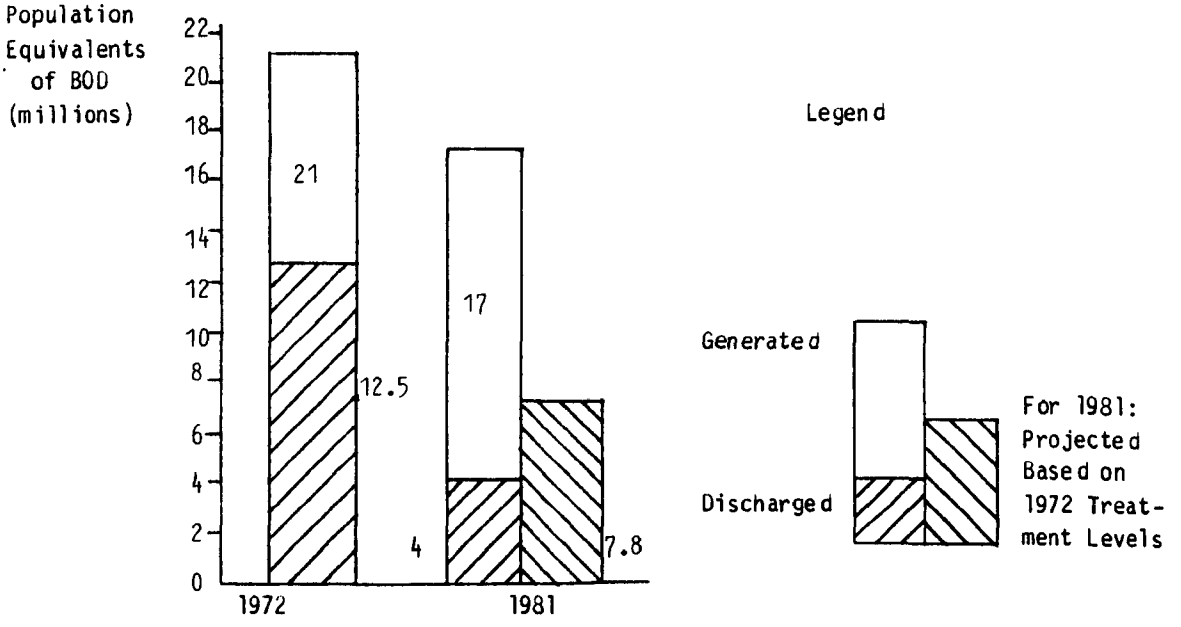
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Does not include combined sewer overflow loadings.

*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

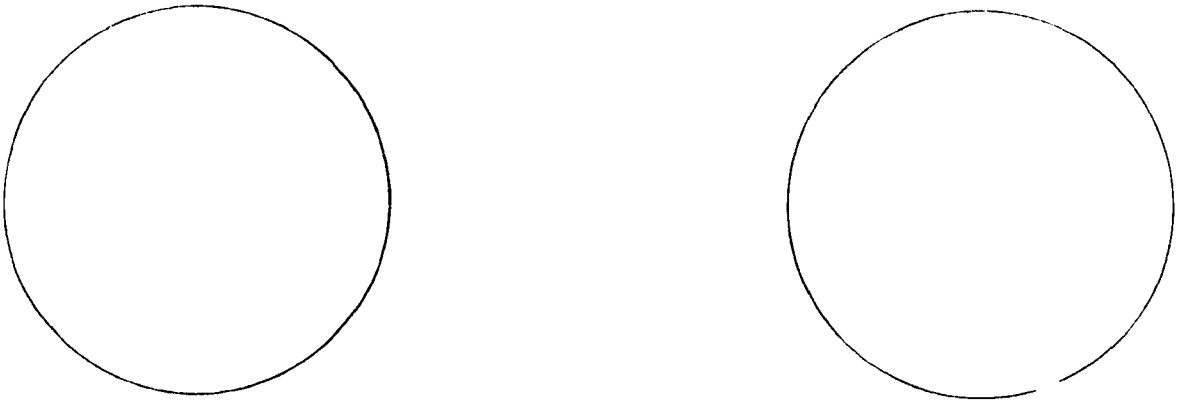
	1972	1982 Interim Permits	1981 Final Permits
Facilities with Permits	81		76
Facilities Meeting 1982 Permit Requirements+			40
Percentage of Facilities for Which Requirements Being Met			53%
Percentage of Flow For Which Requirements Met+			46%
Facilities Needing Upgrading			

Total Permits in Effect in 1982 109

+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972: 1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

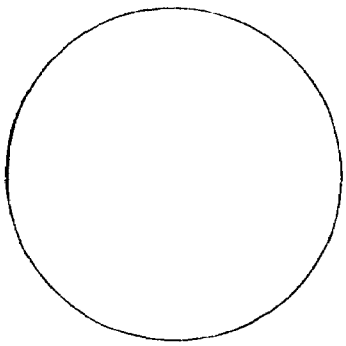
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits			
Facilities Meeting 1982 Permit Requirements+			
Percentage of Facilities for Which Requirements Being Met			
Percentage of Flow for Which Requirements Met+			

Total Permits in Effect in 1982 _____

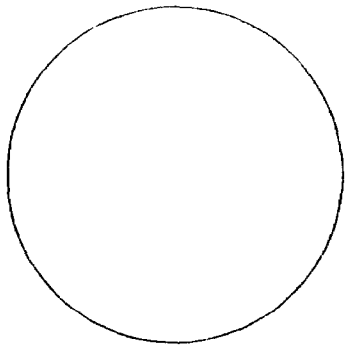
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The contribution of nonpoint pollution sources to degraded water quality in the Interstate Sanitation District is much less than for point sources. Nevertheless, urban runoff, the underwater mining of sand and gravel, and work to maintain navigation channels do place added stress on these waters, perhaps amounting to 10% of the total pollution load. Since great progress has been made in controlling point sources (other than combined sewers) and many of the water segments are still inadequate or only partially suitable for their present and intended uses, it is important to reduce contamination from the nonpoint sources.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent				I to M				
Primary Pollutants				M,O*				

*Severity (UNK indicates that impact is under investigation)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: NPDES AND SPDES Permits for discharges within the Interstate Sanitation District carry provisions requiring effluents to meet the requirements of the Commission's Water Quality Regulations as well as those of the individual states. Ever since the inauguration of the Section 402 Permit Program, the Commission has reviewed permits and participated when necessary in permit proceedings to assure that its requirements are included. The Commission also does compliance monitoring.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

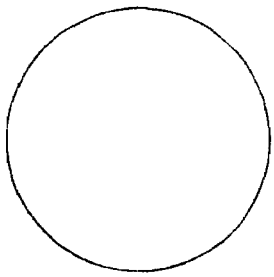
Total Number of Facilities: _____
Number of Pre-Administrative Actions: _____
Number of Administrative Actions: _____
Number of Judicial Actions: _____

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $_____Million

By Percentage



Categories of Sources

Federal - EPA: $_____Million
Other Federal: $_____
State: $_____
Local Match: $_____
Other Local: $_____

C. Program Activities

The pollution control activities of the Interstate Sanitation Commission continue to include monitoring of effluent discharges and of receiving water quality, standards-making and review, and cooperation with the States and U.S. EPA in the NPDES/SPDES Permit Programs. The focus of the Commission's work is not only on the condition and management of the waters involved, but also on the interrelationships with conditions and developments in the waters which intermingle among the States.

The Commission inspects public and industrial treatment works on a regular basis and reports the results of these inspections and accompanying water quality sampling to the States, U.S. EPA, and the discharger involved. The Commission also conducts special samplings and analyses: e.g. for coliform conditions in connection with examination of the States disinfection policies, with a goal of harmonizing them.

The Commission does studies of parameter conditions for its District which show the relationships of existing water quality conditions to applicable standards. For example, this was done for dissolved oxygen, including conditions as they would be in 1990 if all dischargers were then providing secondary treatment. On the basis of these studies and of other data, especially that obtained from its monitoring activities, the Commission reviewed 301(h) applications made by over 20 of the plants in its District.

VI. SITE-SPECIFIC SUCCESSES

1. Improved Dissolved Oxygen

In the early 1970's, most of the waters of the inner portion the Interstate Sanitation District were in seriously degraded condition. They had arrived at such a state because of residential congestion, industrial development and intensity of port use. Their origins were in the nineteenth century and in some respects, even earlier. This was accompanied by long-term, failure to take sufficient preventive or remedial measures.

Development of effluent limitations designed to allow restoration and maintenance of reasonable water quality and intensification of efforts to construct waste treatment facilities to provide full secondary treatment have reversed the trend toward deterioration. In 1975, the most heavily polluted areas in the District (notably Arthur Kill, Kill Van Kull and Newark Bay) had below standard dissolved oxygen content of the entire warm water season (four months from late spring to early fall). By 1981 this worst period had been reduced to approximately two months. Moreover, the readings of virtually zero dissolved oxygen which were common, no longer occurred or did so very rarely. Other areas in the District have also improved greatly, such as the East River.

The importance of these observations is that sustained upgrading to secondary treatment of the District's waste treatment facilities has resulted in a marked improvement of water quality. However, not all the plants have been upgraded. Moreover, there remains a combined sewer overflow problem of large proportions. It is reasonable to expect that if the remainder of the upgrading were to take place and substantial remedial measures for combined sewer discharges were pursued, the waters of the District could be made fully suitable for their present and intended uses so far as dissolved oxygen is concerned. Problems of toxic pollution remain to be addressed.

2. Decreases in Coliform

Since the mid-1970's, there has been a marked decrease in coliform concentrations in most parts of the Interstate Sanitation District. The results have been achieved by improvement in treatment reliability and greater application of disinfection. Direct relation to improve availability for present and intended uses varies, depending on the extent of the coliform reductions and the remaining conditions.

Of great importance is the opening of beaches previously closed to bathing. Because of the patterns of tidal flows and currents, improvements in treatment in one state have been necessary to make the increased beach use in another state possible.

Shellfisheries have also benefited. Limited reopenings of shellfish harvesting areas have occurred and it is now possible to consider seriously resumption of production on a larger scale.

While the improvements have been spectacular in many parts of the District, they have not everywhere produced low enough coliform counts to affect uses. It is also true that waters which have gone from "unuseable" for primary contact recreation or shellfish harvesting to "marginal" might, with further efforts, be made of really good quality for the intended uses.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Part B. Major Remaining Problems:

- ___ - Surface water quality maintenance and/or quantity assurance in light of
- X - population and industrial growth.
- ___ - Groundwater resource quality protection or supply assurance.
- ___ - Identification and control of toxic pollutants from industrial and non-point
- X - sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ___ - Pollution arising from abandoned industrial and/or mining facilities.

Toxic pollution of surface waters, due to an absence of meaningful pretreatment and raw discharges from combined sewers, presents a major problem of great importance. We have not answered VII. A. because there has been little progress in dealing with the toxins problem to date. Until appropriate pretreatment requirements are imposed and actually enforced, these discharges of toxics to the public sewer systems of the area will continue to result in pollution of the receiving waters. Public treatment plants do not remove enough toxic pollutants from influents to solve the problem. Furthermore, one result of current processes is to produce toxic sludges which then present their own disposal problems.

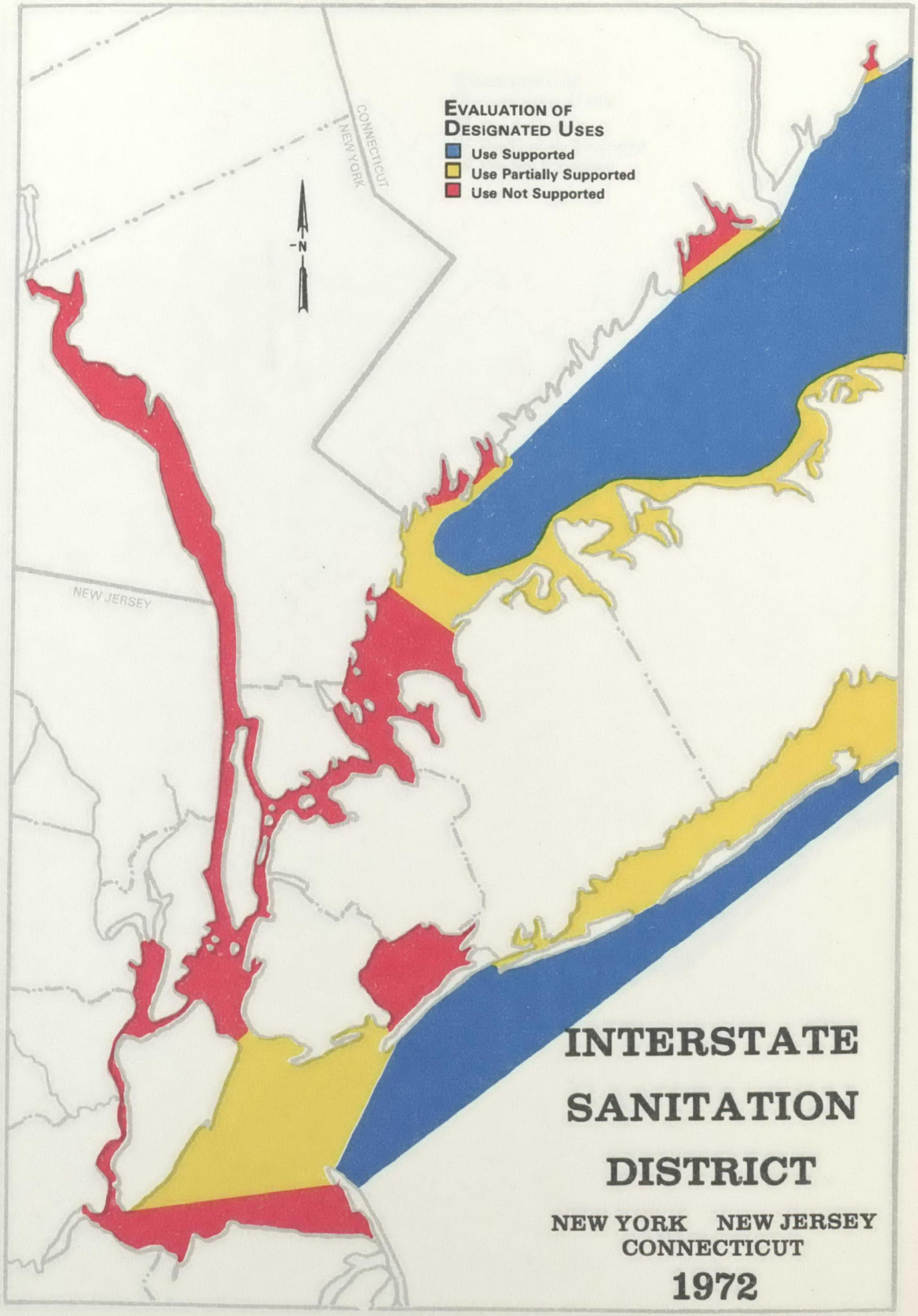
Combined sewers, which are a major phenomenon in the core of the Region, contribute raw overflows which are detrimental to maintenance of quality for both conventional and toxic parameters.

AGENCY PREPARING REPORT: Interstate Sanitation Commission

Alan I. Mytelka, Ph.D

CONTACT PERSON & PHONE #: (212) 582-0380

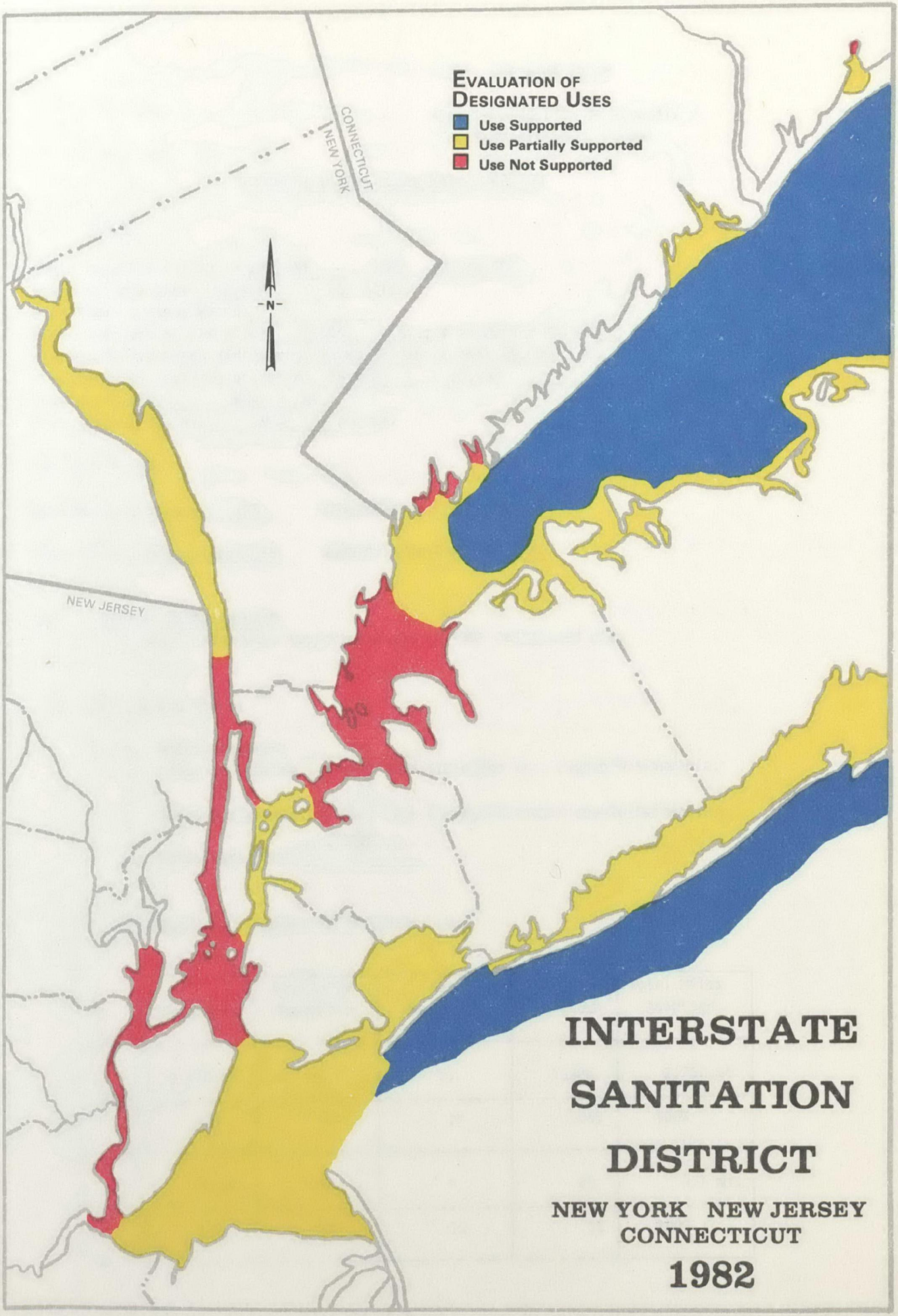
DATE: August 30, 1983



INTERSTATE SANITATION DISTRICT

NEW YORK NEW JERSEY
CONNECTICUT

1972



INTERSTATE SANITATION DISTRICT

NEW YORK NEW JERSEY
CONNECTICUT

1982

State of Iowa*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,825,041 1980 2,913,387
State Surface Area 55,940 sq. miles
# of River Systems/Basins 6
# of River and Stream Miles 17,464 mi.; # of Border Miles* 606 mi.
# of Lakes and Ponds and Acreage lakes 80,448 /ponds 49,000 ac.
# of Marsh or Wetlands ac./sq.mi. 76,470 ac. or _____ sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Missouri 183 Name/Mileage Big Sioux 86

Name/Mileage Mississippi 315 Name/Mileage Des Moines 22

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

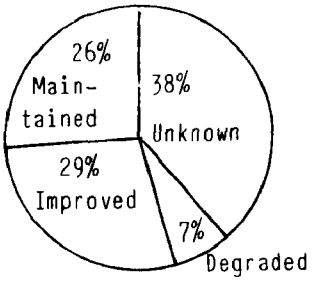
1. a. Miles Assessed: 971
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 15
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 9,598
   d. Miles Monitored: 971

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	1,166 mi.	23	61	1,506	2,757 mi.
	42%	1%	2%	55%	100%
1982	794 mi.	144	5	28	971 mi.
	82%	15%	1%	3%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	275	7
Miles Degraded:	20	50
Miles Maintained:	250	
Unknown:	369	

B. Lakes and Reservoirs

1. a. Acres Assessed: 69,555

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 33,127

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

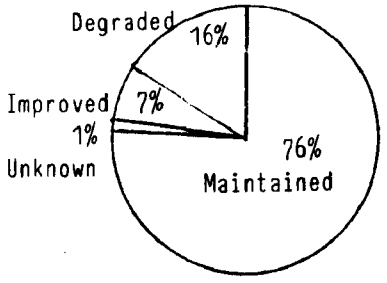
d. Acres Monitored: 58,555

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	38,495 ac.	30,786	246	28	69,555 ac.
	55.3%	44.2%	0.4%	0.1%	100%
1982	32,056 ac.	37,465	34	0	69,555 ac.
	46%	53.9%	0.1%	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

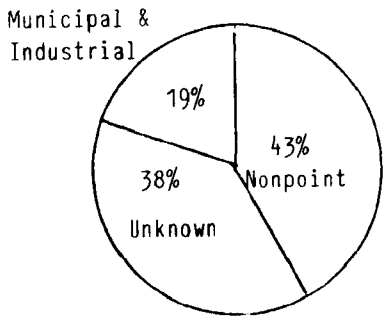


	Within Category	Change in Category
Acres Improved:	5,065	203
Acres Degraded:	11,320	0
Acres Maintained:	52,939	
Unknown:	28	

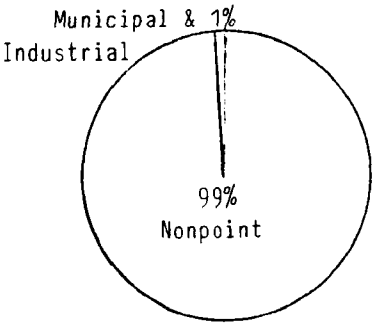
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

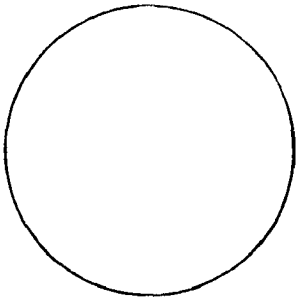
a. Streams and Rivers



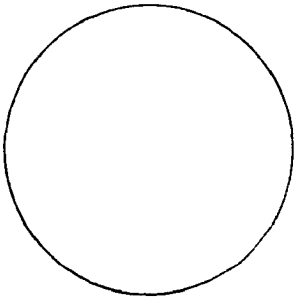
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X						DO/NH3
Industrial									
Non-Point	X	X	X				X	Siltation	NH3
Other (inc. natural)									

* Most serious pollutant in streams
**Most serious pollutant in lakes

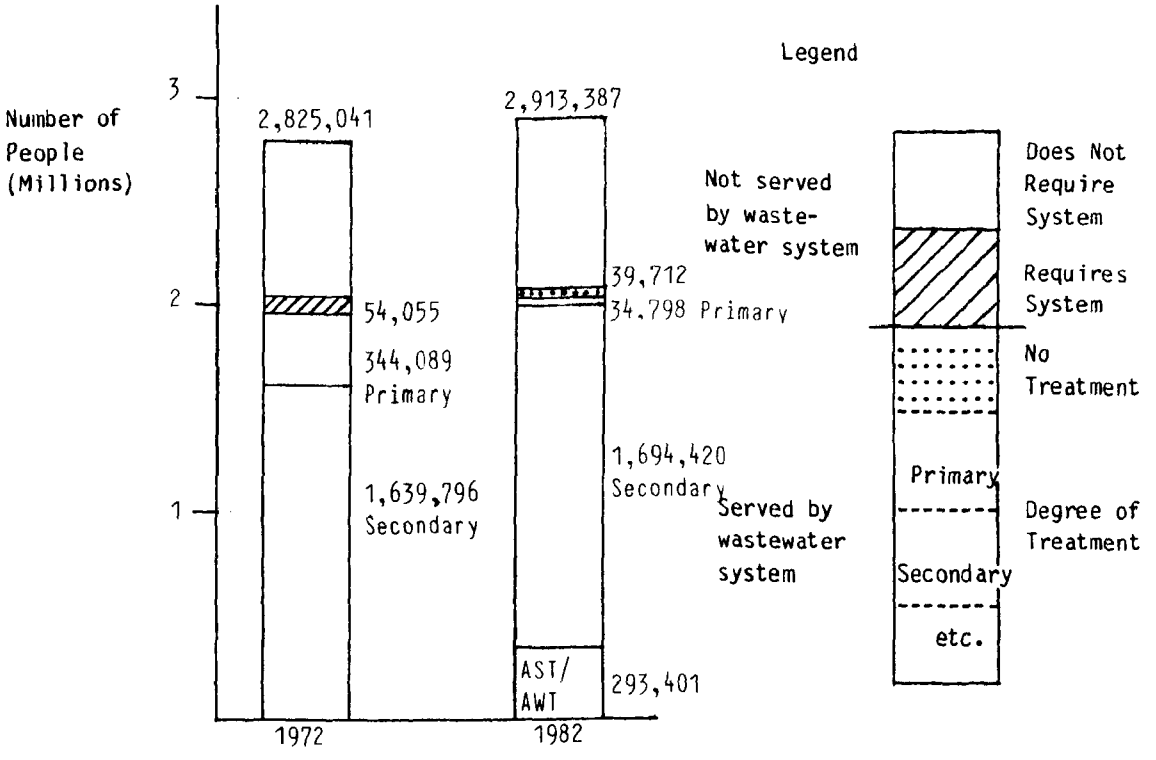
*Number of Stream/River Miles Affected by Toxics: Unknown
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

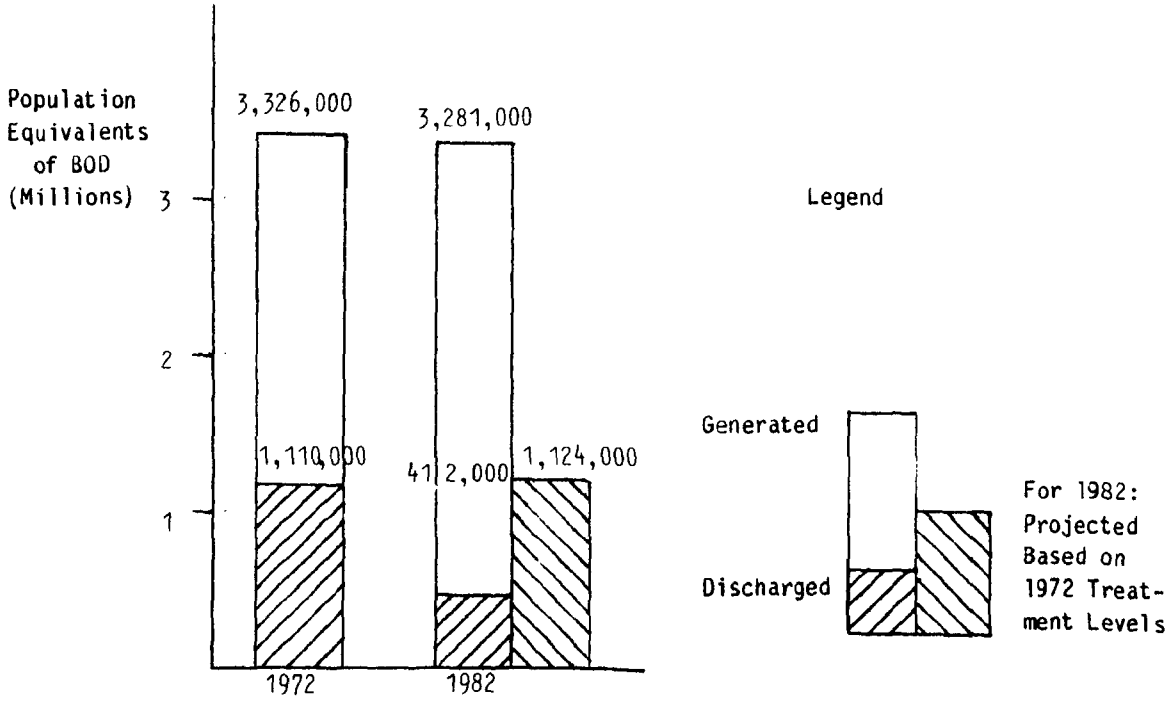
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

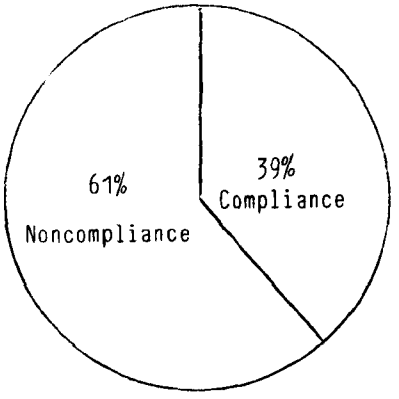
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	---	10	51	
Facilities Meeting 1982 Permit Requirements+	24	4	38	Total Permits in Effect in 1982 693
Percentage of Facilities for Which Requirements Being Met	39%	40%	75%	
Percentage of Flow For Which Requirements Met+	28%	17%	82%	
Facilities Needing Upgrading	43	6	10	

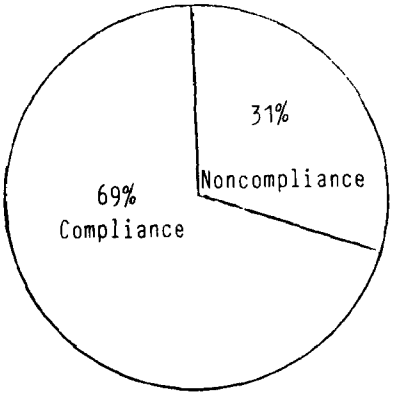
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



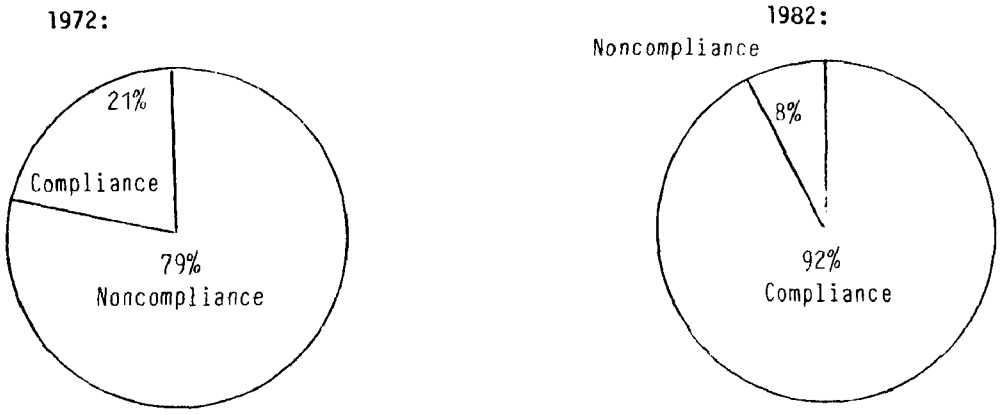
B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	---		74	Total Permits in Effect in 1982 467
Facilities Meeting 1982 Permit Requirements+	38		68	
Percentage of Facilities for Which Requirements Being Met	56%		92%	
Percentage of Flow for Which Requirements Met+	59%		75%	

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

Because agricultural land uses predominate in Iowa (85% of land is in agricultural uses, 73% is row cropped), agricultural runoff is the state's major nonpoint pollution source. Agricultural runoff carries sediment, nutrients, pesticides, and other pollutants to the state's surface waters. The leaching of nutrients, particularly nitrates, and pesticides from agricultural lands is impacting groundwater quality in much of the state. Shallow aquifers overlain by limestone or other pervious materials are particularly affected.

Controlling excessive soil erosion is an essential element of Iowa's nonpoint pollution control program, as research has shown that erosion controls are effective in reducing the loadings of many of the nonpoint pollutants of concern in Iowa. Because surface waters throughout Iowa are impacted by agricultural runoff, the state's nonpoint control program calls for expansion of soil conservation efforts statewide, including increased funding for local, state, and federal soil conservation programs and the development of new program approaches. As a result of legislation enacted in 1983, funding for the state cost share program was increased to nearly $8.5 million a year (was at $5.6 million level in FY82). In addition, a state no-interest revolving loan fund was established for installing permanent soil conservation practices, with $1 million appropriated for each of the next 2 years to this fund.

Iowa's nonpoint control program also calls for the development and implementation of site-specific control projects in the watersheds of high priority streams and lakes, using funds from all available programs to achieve implementation. To date, implementation projects are underway on Prairie Rose Lake (using USDA's Rural Clean Water Program) and Green Valley Lake (using EPA's Clean Lakes Program in conjunction with state cost share funds). Additional implementation projects are currently being developed. The implementation projects include use of structural and management practices to control soil erosion, use of nutrient and pesticide management BMPs, and monitoring of water quality to determine project impacts.

Studies are currently underway to assess the impact of agricultural drainage wells on groundwater quality in north central Iowa and the impacts of runoff and leaching from agricultural lands into groundwaters in the karst areas of northeastern Iowa. The completion of these studies may lead to the development of state groundwater control programs.

Responsibility for administering Iowa's nonpoint pollution control programs is shared by the Iowa Department of Water, Air, and Waste Management and the Iowa Department of Soil Conservation. Responsibility for administering individual implementation projects varies, and is generally dependent upon the funding program used to carry out the project.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M-L	S-W	N/A	I-L	I-L	I-L	N/A	I-N
Primary Pollutants	C,M,N,T OxDe,SS	C,N,OxDe, P,SS,T	--	M,pH SS,T	SS,T	SS,T	--	C,M,N OxDe

Severity (UNK indicates that impact is under investigation)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The decade of this report was the first to place emphasis on the enforcement of permit requirements rather than water quality standards although the enforcement of standards continues to be important. Iowa, like most other states, utilizes inspections and monitoring information to identify problems. Once a violation is noted, a sequence of actions ranging from informal notification to formal notice, administrative orders, hearings and ultimately litigation are utilized to secure compliance. The actions taken are a function of the severity of the violation, its impact on water quality, and the cooperativeness of the alleged violator. The State has been willing to litigate if necessary and has secured penalties in excess of $400,000 from an industrial source. The success of our recent efforts to seek voluntary action by cities is exemplified by two communities who are making $15 million in improvements without grants. While one of these began with court action, the result surpassed the agency's expectations.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

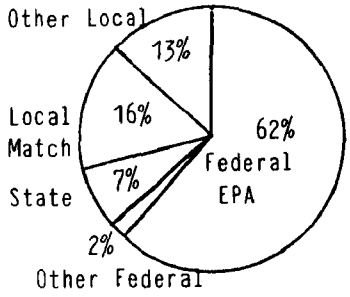
Total Number of Facilities:	25
Number of Pre-Administrative Actions:	19
Number of Administrative Actions:	3
Number of Judicial Actions:	3

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 708 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 440,097,944 Million
Other Federal:	$ 15,193,400
State:	$ 45,882,670
Local Match:	$ 117,359,450
Other Local:	$ 89,179,948

C. Program Activities

Iowa, like many states, began water pollution control efforts in the 1920's under the Department of Health. In 1973 an environmental control agency was formed which paralleled EPA. In 1983 Iowa merged all water resource programs to more effectively manage cross cutting water quality/water quantity issues. Highlights of our program by function are as follows:

Planning/Standards - Iowa aggressively pursued the completion of attainable standards for its streams. By the completion of a thorough review in 1976, the adoption of criteria and segment classification process was essentially final. Establishment of discharge limitations and refinement of waste load allocation models continues to be spurred by the sensitivity of small interior streams to a dispersed population and numerous discharges. In the mid 1970's the state embarked on a comprehensive evaluation of nonpoint problems. Water quality based priorities were set for state-wide nonpoint control needs, and studies were conducted to better identify nonpoint impacts on water quality. Research on the effectiveness of best management practices was initiated and an implementation plan was developed and approved.

A study of groundwater problems began in 1980, focusing on a critical portion of the state with fractured limestone, sinkholes and thin soil cover. The state's water quality management plan identified groundwater contamination in a 22 county area and its control as the top concern to be addressed. This effort continues today with further attempts to define the impact of surface activities on groundwater quality and to identify measures to control groundwater contamination. Beyond its value for this particular area of the state the information gathered to date serves as a model for evaluation of other groundwater concerns and for advancing the scope of our statewide management efforts.

Water Quality Monitoring - In order to assess the quality of the state's waters and to evaluate progress being made to improve water quality, significant resources are committed to monitoring activities. The major elements of the monitoring effort include ambient monitoring at a network of fixed stations, intensive stream surveys, and discharge monitoring. Improvements to these monitoring programs include increased monitoring for toxic pollutants and improved selection of sample locations and flow conditions to maximize the likelihood of identifying problems. Intensive surveys and discharge sampling are better coordinated to reduce duplication of effort. In 1982 we began to work with a few dischargers to expand their monitoring efforts to include instream as well as discharge sampling. With reduced funding, Iowa has made an effort to identify and coordinate any state, federal or local water quality monitoring. In 1982 the Iowa Legislature approved funding to the state's Water Resources Research Institute, but mandated that the funds should serve the needs of state agencies. The result has been better communication and more direct correlation between research and required information.

Regional Programs - Regional offices in Iowa have a long history. The period of 1972 to 1982, however, was one of dramatic change. Historically the role of these offices was primarily to provide technical assistance. By the mid 1970's that role had matured into one predominantly enforcement oriented. The extent of the transformation was evidenced by increased staffing, expansion of compliance inspections and the near absence of technical assistance. Beginning in 1982, there was a renewed emphasis on technical assistance and the development of a corps of highly trained staff within the central office to deal with more complex problems. The period from 1980-1982 has also seen the expansion of the regional programs' role in compliance actions. With the legal staff they deal with non-compliance from initial notices through referrals for legal action.

VI. SITE-SPECIFIC SUCCESSES

The Cedar River

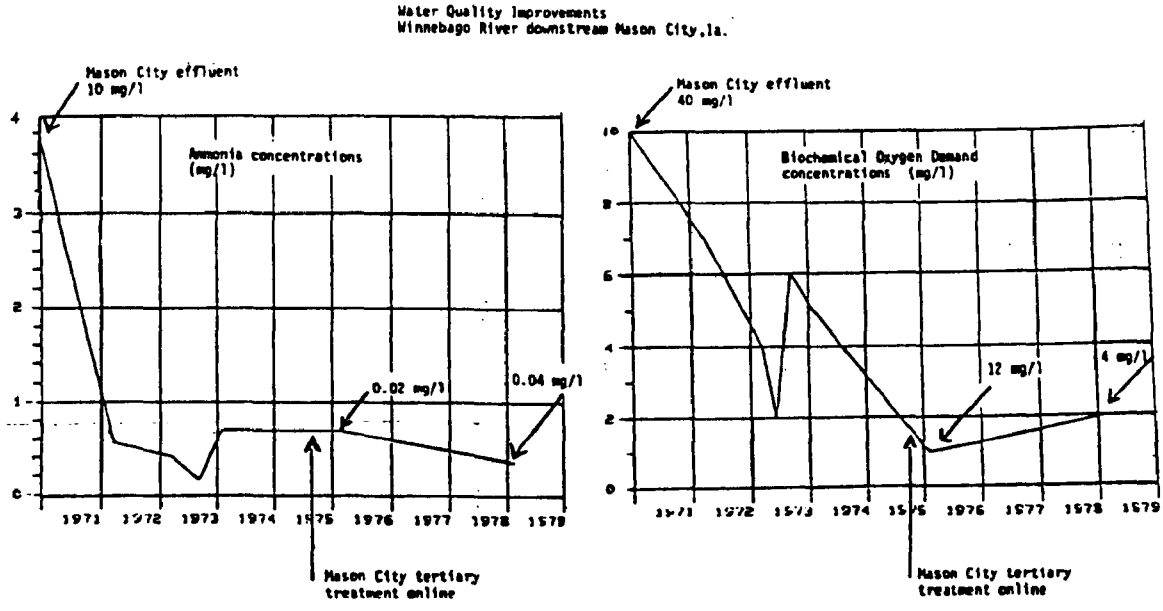
Early 1970 monitoring on the Cedar River in the Cedar Rapids area (population 110,200) shows the impact of effluent discharges on the chemical and biological quality of the river. During the period of study, a massive fish kill also occurred. Studies in 1976 show continuing unacceptable water quality as evidenced by Iowa Water Quality Standards violations and "seriously disturbed" biological populations in the reach. Population and industrial growth during the 1970's increased the pollution potential and emphasized the need for treatment plant improvements. Construction of a new Cedar Rapids treatment plant has dramatically reduced the pollutant input to the stream and improved the quality of the downstream reach. On the recreational level, previous complaints of taste and odor problems in fish flesh and fish kills have given way to increased fish populations and fishery use.

Cedar Rapids WWTP Discharge

	BOD		Ammonia	
	Conc.	Load	Con.	Load
1972	94	21,003	55	11,713
1982	4.4	1,402	3.8	1,196

The Winnebago River

Improvements in the quality of the Winnebago River occurred in 1975, when Mason City (population 30,100) put a tertiary treatment unit online. The figures shown below demonstrate the stream's response to pollutant input in 1970, 1976 and 1979 under winter, low flow conditions. The number of fish kills reported to the Iowa Conservation Commission dropped to near zero after the treatment improvement. Fishery pressure for Walleye and Northern Pike in the downstream reach is now high.



VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

While most of the activity in the past decade has necessarily been directed toward the refinement and implementation of point source discharge controls, other water concerns have also been emerging. In order to better control the impact of toxic discharges, the state requires significant contributors to execute enforceable treatment agreements with municipalities. Concern over our ability to meet our surface water quality objectives and to protect our drinking water supplies led to the expansion of our efforts to quantify and control non-point source pollution. With our dispersed population and intense livestock production, Iowa has needed substantial resources to deal with the associated waste disposal and related odor problems. Continued increases in spills of hazardous materials gave rise to the development of a spill response team which is constantly challenged by unique incidents.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
X sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
X - Pollution arising from abandoned industrial and/or mining facilities.

As point source problems are reduced, the need for non-point controls grows more evident. As stated earlier, agricultural production is important to the state's economy. The challenge is to implement strong control programs which don't impair the productive activity. Of growing concern is the relationship between the levels of agricultural chemicals in cropland runoff and leachate and the contamination of groundwater.

Groundwater protection programs must continue to develop. The current needs are similar to those of surface water protection at the begining of the last decade. Problem assessment, control method development and standard setting are the primary groundwater topics under consideration at this time. Because of the diversity of sources of contamination, groundwater production will require close coordination of non-point controls, solid and hazardous waste disposal, and improvements to water supply production and treatment systems.

Progress in municipal wastewater treatment has been hampered by recent reductions in federal funding. Iowa has developed a municipal improvement program that is based on municipal responsibility but also relies on close cooperation between the state and local governments in planning improvements. The program has encouraged upgrading of existing facilities, phased improvements and reassessment of user fees to provide a base for capital financing. Projects in the construction phase so far have ranged from thousands of dollars to more than $10,000,000. Most of these are interim projects with final compliance to come later, but they represent a commitment to self-improvement and an immediate reduction of the pollutant loading to the receiving streams.

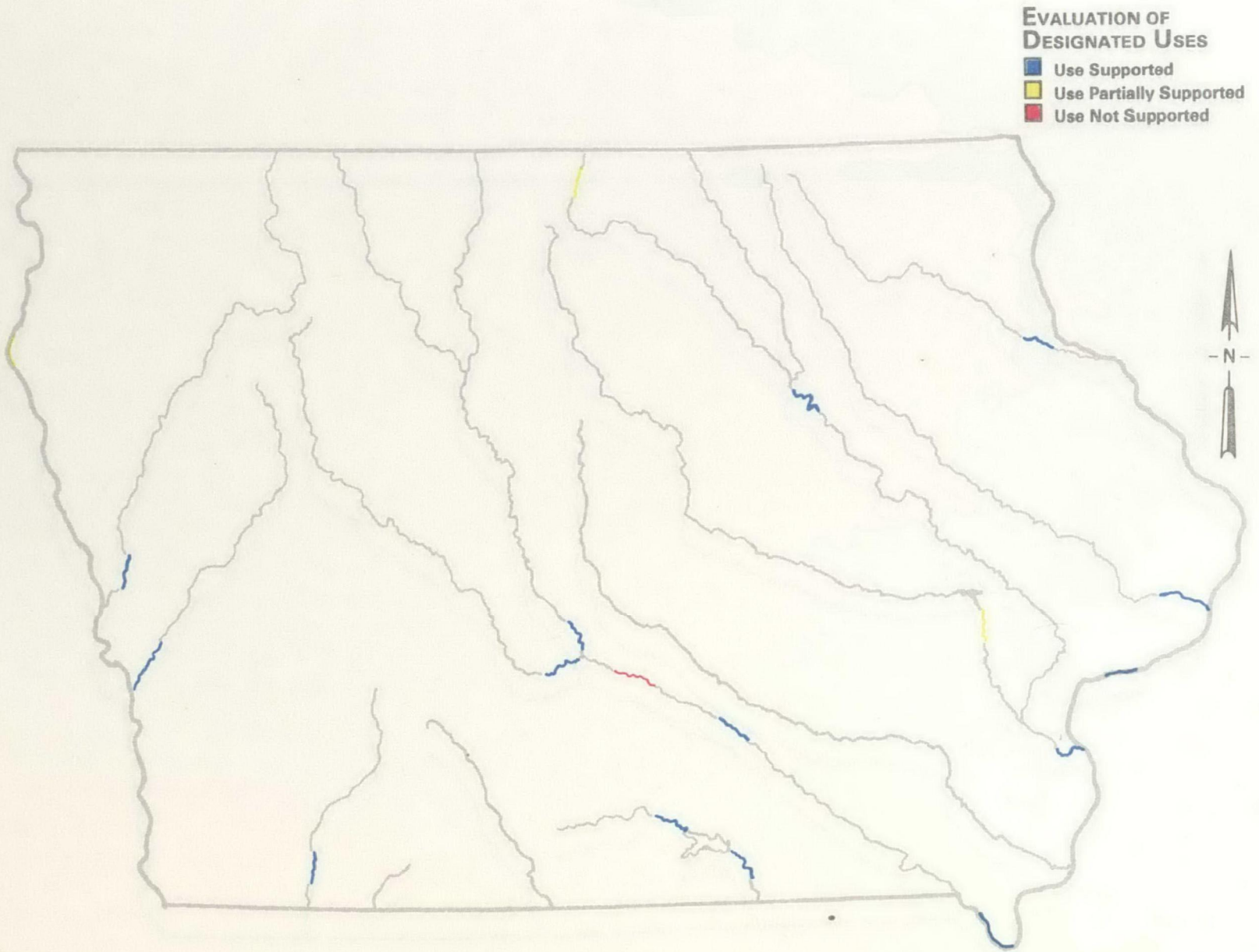
AGENCY PREPARING REPORT: Department of Water, Air and Waste Management

Iowa

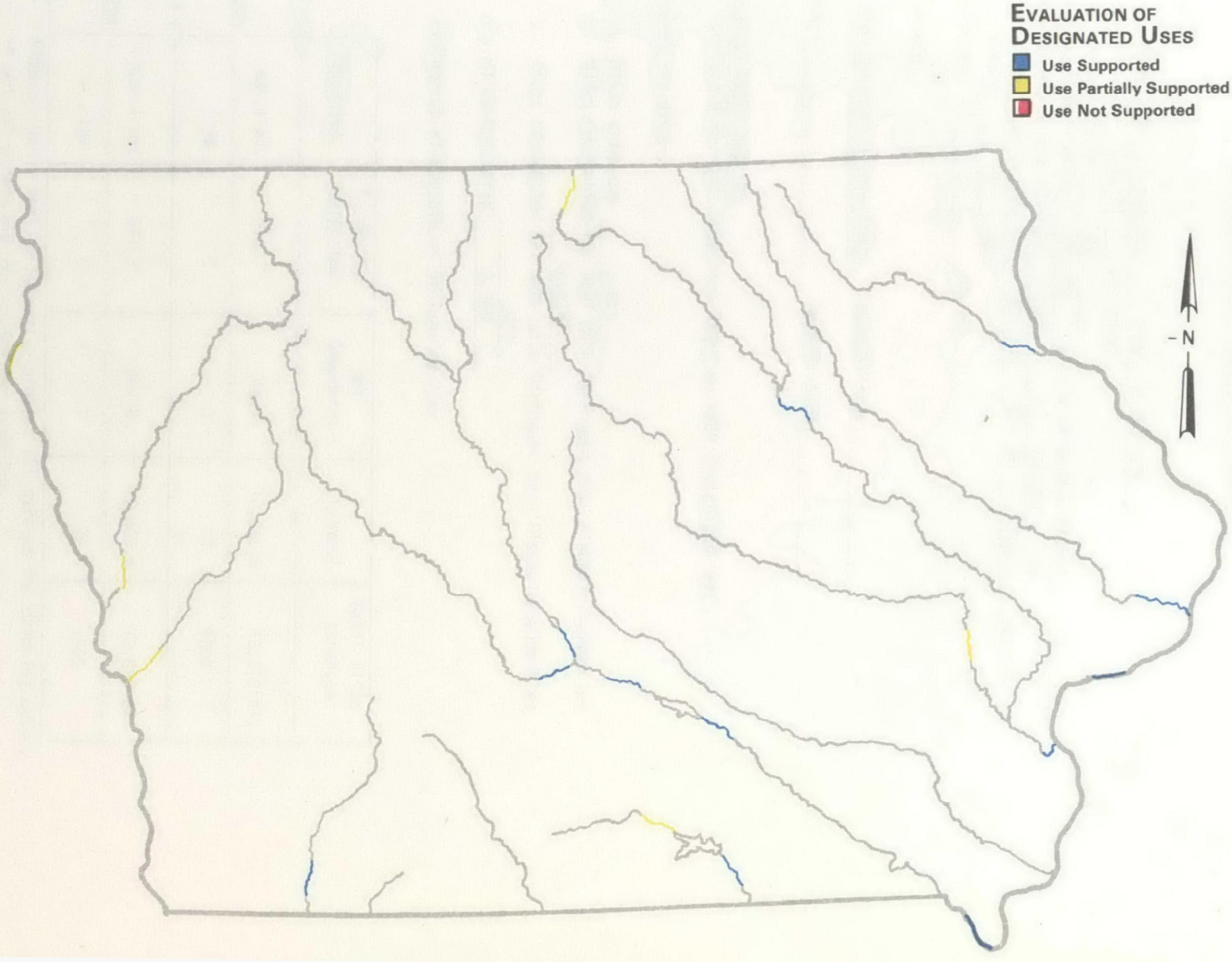
CONTACT PERSON & PHONE #: J. Edward Brown 515/281-8692

DATE: 10/21/83

IOWA
1972


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

IOWA
1982


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

State of Kansas*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,249,071 1980 2,363,679
State Surface Area 82,264 sq. miles
# of River Systems/Basins 16
# of River and Stream Miles 20,570 mi.; # of Border Miles* 133.3 mi.
# of Lakes and Ponds and Acreage 233 / 190,000 ac.
# of Marsh or Wetlands ac./sq.mi. 491,640 ac. or 768 sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage Missouri River 133.3 Name/Mileage

Name/Mileage Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 13,810
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 13,810*
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0**
   d. Miles Monitored: 3,750

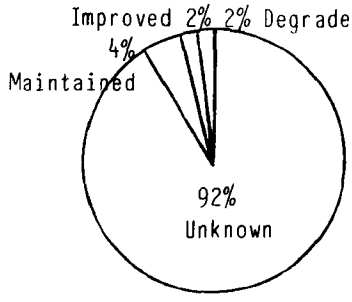
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	589.4 mi.	278.7	346.4	12,595.5	13,810 mi.
	4%	2	3	91	100%
1982	1,838.4 mi.	617.2	948.8	10,405.6	13,810 mi.
	13%	5	7	75	100%

* Kansas Water Quality Standards protect all streams for drinking water.
** Not all waters are designated for swimming.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	not available	231.0
Miles Degraded:	not available	310.7
Miles Maintained:	615.9	
Unknown:	12,652.5	

B. Lakes and Reservoirs

1. a. Acres Assessed: 150,000
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 124,000

   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 66,000

   d. Acres Monitored: 30,000 in 1982

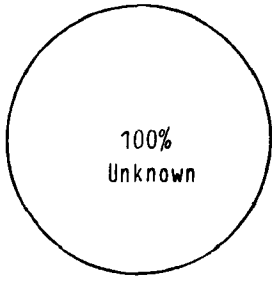
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	30,000* ac.			120,000	150,000 ac.
	20%			80	100%

*Based on lakes monitored in 1982--on the basis of absence of complaints virtually all lakes support designated uses.

3. Changes In and Within Use Support 1972 - 1982

By Percentage

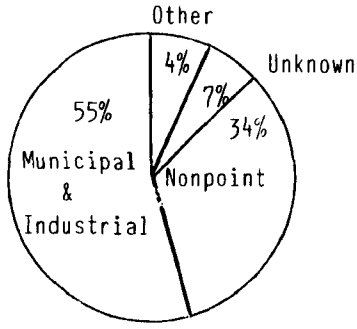


	Within Category	Change in Category
Acres Improved:	not available	
Acres Degraded:	not available	
Acres Maintained:	not available	
Unknown:	150,000	

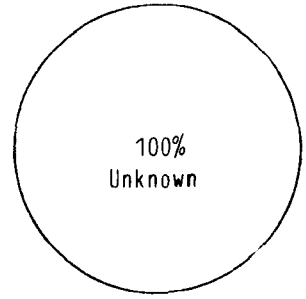
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

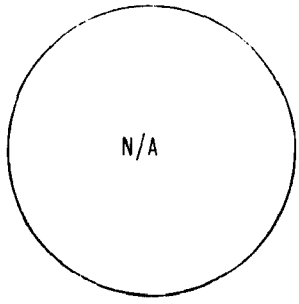
a. Streams and Rivers



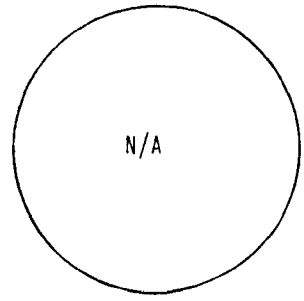
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			Toxics
Industrial	X		X			X			Other (3)
Non-Point	X		X			X	X	X (1)	
Other (inc. natural)								X (2)	

(1) Sediment (2) Dissolved solids-mineral intrusion (3) Mineral intrusion-dissolved solids affects significant number of drinking water users. Sediment from agric. sources is statewide.

*Number of Stream/River Miles Affected by Toxics:	2/ 8.8**
*Number of Lake/Reservoir Acres Affected by Toxics:	4/ 39,000
*Number of Estuary Square Miles Affected by Toxics:	-
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	-

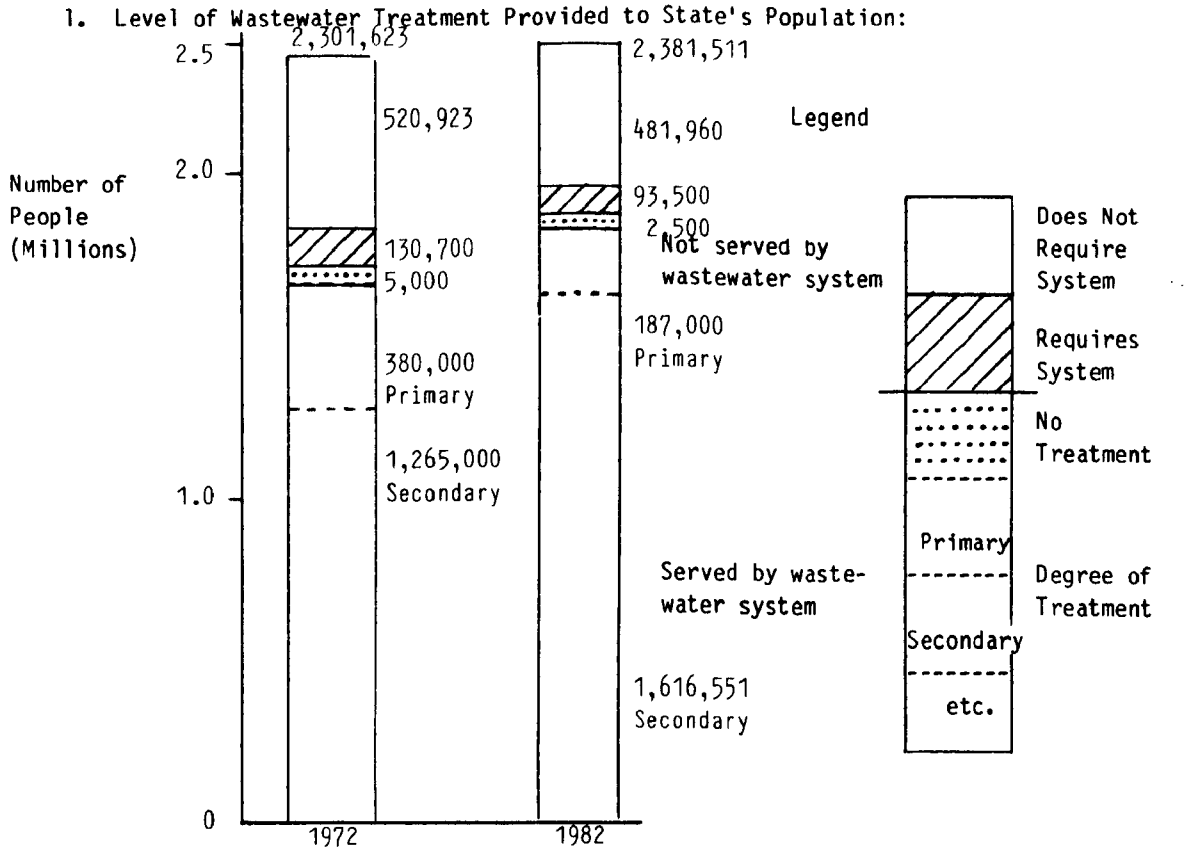
** Exceeds designated water use standards.

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

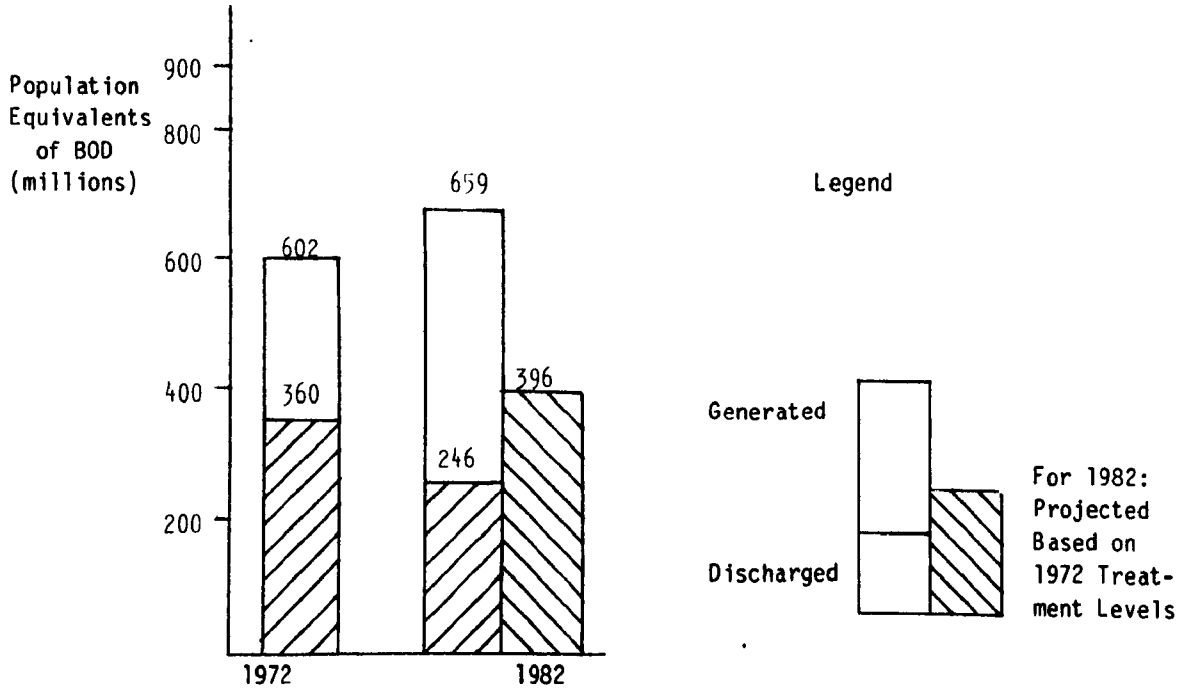
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

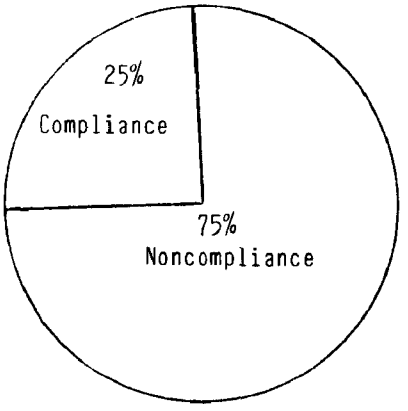
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	28	9	39	
Facilities Meeting 1982 Permit Requirements[+]	7	6	38	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	25.0%	66.7%	92%	
Percentage of Flow For Which Requirements Met[+]	44.4%	87.0%	98.9%	
Facilities Needing Upgrading	28	9	0	900

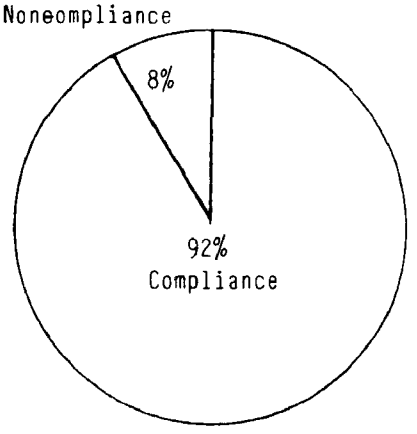
[+]Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

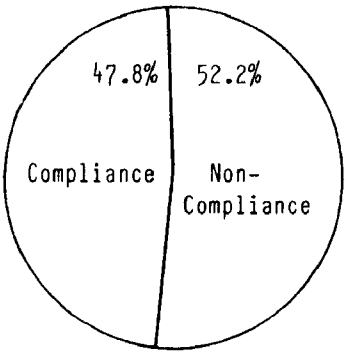
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	69		73	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements[+]	33		64	
Percentage of Facilities for Which Requirements Being Met	47.8%		87.7%	
Percentage of Flow for Which Requirements Met[+]	5.6%		93.2%	330

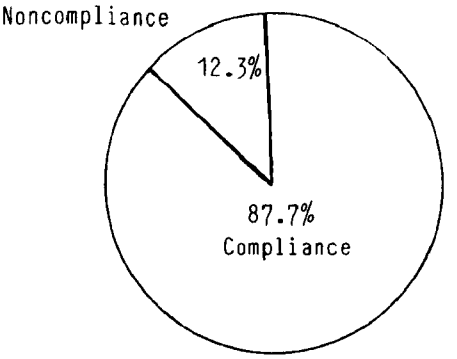
[+]Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Agricultural and urban runoff, municipal intrusion, mining (mainly abandoned mined land), construction activities, irrigation and residual wastes are nonpoint sources of primary concern to Kansas.

The nonpoint source management program consists of studies to characterize and quantitize problems, and technical assistance to encourage voluntary implementation of control measures.

The ag nonpoint source management program is linked to soil conservation goals. The basic policy assumptions are 1) treating all ag land to meet soil conservation standards will result in attainment of water quality goals, and 2) practices will be voluntarily installed if financial assistance and technical assistance are provided. Kansas has a Rural Clean Water Program project and a special Agricultural Conservation Program water quality project covering about 260,000 acres. The Section 314 Clean Lakes Program is also being used to implement the ag nonpoint source management plan. In 4 projects, Clean Lakes study will include a watershed needs inventory. The Phase 2 project is considering use of Clean Lakes funds on needed practices. The State Conservation Commission has also provided about $3 million of farmer cost-share funds over the past 3 years.

Kansas has participated in the Nationwide Urban Runoff program (Kansas City area) and conducted a similar study in cooperation with USGS in the Topeka area.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M,L	M,W,L,(1)	NA (2)	S,L	I,L	NA	S,L(3)	I,L
Primary Pollutants	C,T O (4)	C,T,P,O(5)	NA	pH,T O (6)	O (5)	NA	S	O (7)

(1) Heavy stormwater runoff from crop and grazing land creates significant erosion across the entire state. Irrigation related nonpoint source is limited to western portion of the state.
(2) Included under agricultural sector.
(3) Mineral intrusion from natural sources does not affect all waters but does affect a significant portion of state population's drinking water.
(4) Other pollutants: oxygen demand, heavy metals, suspended solids/sediment.
(5) Other pollutants: suspended solids/sediments.
(6) Other pollutants: suspended solids/sediment, heavy metals.
(7) Other pollutants: heavy metals.

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The State of Kansas has a vigorous enforcement policy, comparable to the federal enforcement policy and it is uniformly applied against violators. KDHE's policy is to achieve compliance without formal enforcement action through voluntary cooperation; however, in case no volunteer cooperation is received or no satisfactory progress is made toward compliance, vigorous enforcement action is taken.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

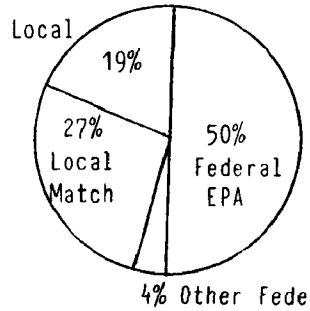
Total Number of Facilities:	13
Number of Pre-Administrative Actions:	10
Number of Administrative Actions:	2
Number of Judicial Actions:	1

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 633 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 316 Million
Other Federal:	$ 27
State:	$ 0
Local Match:	$ 170
Other Local:	$ 120
TOTAL:	$ 633

C. Program Activities

WATER POLLUTION CONTROL

Activities include: Inspection, construction grant administration, municipal/industrial ag wastewater control, NPDES permit administration, pretreatment and enforcement.

Annual inspections are made of every wastewater treatment facility with the exception of small ag installations. Deficiencies are noted and appropriate corrective action initiated either verbally, by letter, by referral to the Central Office, directive, order or penalty order. Inspections are recorded and reviewed by the Central office assuring coordination between District inspectors and the enforcement, industrial and municipal program managers. This also insures priority coordination within the construction grants program. NPDES permits are also coordinated with inspection, grants administration and municipal and industrial wastewater control activities. This assures the compliance schedules within the permits are appropriate. The ag waste control activities include direct technical assistance to feeding operators. The Water Pollution Control activities are coordinated with the Water Quality Management activities to achieve the protection of the benefical uses of the waters of the State.

WATER QUALITY MANAGEMENT

Monitoring: Water quality monitoring program examines chemical and biological quality of streams and lakes. The establishment of a bioassay laboratory is in progress to screen for toxicity. Approximately 85% of the perennial waters of the State are regularly monitored.

Planning: The 208 Plan, completed in 1979, was the product of an interagency effort and was reviewed and endorsed by the Kansas Legislature. The Plan provided the basis for the Kansas Nonpoint Source Management Program and instituted a number of interagency arrangements for implementation. The Plan identified a number of additional studies to be reported to the 1984 Legislature and established a continuing water quality planning process and water quality standards setup. The revision of the water quality standards is in progress to achieve water-quality based planning and decision making.

Emergency Response: Fishkills are investigated cooperatively with the Kansas Fish & Game Commission. This information is used in program planning and institution of enforcement proceedings.

Technical Assistance: Water Quality Management provides assistance required by statutes and regulations as well as implementation of nonrequired but desirable activities--control of construction site erosion and sedimentation.

Comparison of Program Expenditures for 1972 and 1982

(Excluding Capital Construction Costs for Municipal Wastewater Facilities)

	1972	1982
Total Expenditures:	$574,000	$1,970,199
Federal Portion:	95,900	1,271,426
State Portion:	478,100	698,773

VI. SITE-SPECIFIC SUCCESSES

Clean Lakes Project

Kansas has five successful Section 314 Clean Lakes projects and four are studies. These projects are significant in: 1) fostering cooperation between lake owners and watershed residents; 2) illustrating the relationship between watershed activities and lake quality; 3) demonstrating the utility of lake and watershed management plans; and, 4) establishing a lake and watershed operation and maintenance manual.

Cottonwood and Neosho River Cleanup

The water quality of the Neosho and Cottonwood Rivers above John Redmond Reservoir is much improved due to agricultural (feedlots), industrial and municipal wastewater control implementation. In the 1960's, the reservoir was closed to body-contact recreation and fishkills were common. In the last decade, wastewater treatment plants (3 municipal and 1 industrial) have been upgraded and five large animal-feeding operations were provided with waste control management. Water quality in the two rivers and the reservoir significantly improved and fishkills, algae blooms and public health problems are eliminated. In short, John Redmond Reservoir, once again, is fishable and swimmable.

Public Health Improvement at Weir and Pittsburg

The City of Weir and part of Pittsburg disposed of sanitary sewage in old mine shafts creating groundwater pollution and adverse public health conditions. Construction grant monies were used to build collector sewers and transfer the waste to the municipal wastewater treatment plants.

Salt Mining at Lyons and Hutchinson

Salt mines and salt processing plants at Lyons and Hutchinson dumped process wastes to Cow Creek and the Arkansas River significantly raising the chloride concentrations of the rivers and causing unsightly sludge banks. As a result of the NPDES permit system, the plants modified their processes and waste disposal methods to achieve recycle except for cooling waters. Thus, water quality significantly improved.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS -- Part A and B

1. Southeast Kansas Mining--Kansas has approximately 50,000 acres active/abandoned mined land. Stabilization of waste storages and "mine water" control is necessary.

2. Natural Mineral Intrusion--Pilot studies currently under way are expected to indicate feasibility of control. Implementation of feasible control is necessary.

3. Hazardous and Toxic Compounds in Surface Waters--Preliminary samplings and studies indicate the presence of pesticides and heavy metals in streams used for drinking water. Further monitoring and studies are needed to determine significance of these findings.

4. Diversion of Surface Waters for Irrigation--Diversion of surface waters in western Kansas streams increases the proportion of stream flow consisting of treated effluent. This needs to be closely monitored and a higher degree of treatment may be needed to protect designated water uses.

5. Wastewater and Water Treatment Sludges--There are no known sludge management problems. However, there is a public perception that these materials are potentially hazardous. The need exists to assure that these materials are utilized as a resource rather than a waste material. Increased production residues due to implementation of pretreatment requirements will have to have more attention.

6. Lake and Watershed Management Plans--The majority of Kansas water recreation is associated with lakes. There is a need to examine the need for developing coordinated lake and watershed management plans to assure these resources are adequately protected and water quality maintained.

7. Continuing Planning Process--(a) 1981 Amendments to the Clean Water Act have established the need to revise the continuing planning process for water quality management. The process needs to integrate water quality monitoring activities into priority setting, decision-making and implementation programs. (b) Effective planning for orderly (utility-wise) growth control in urbanized counties shall be provided through either the continuation of county-wide wastewater management plan development process or by other planning means.

8. Secondary Treatment--Achieving 100% secondary treatment level requires interstate coordination between Kansas and Missouri. Federal intervention is needed.

9. Utility Concept for Municipal Wastewater Management--To phase out Federal and/or State financial assistance to municipalities for building or replacing wastewater works facilities, it is essential to provide technical assistance to municipalities in implementing the utility concept of wastewater management.

10. Increased Technical Assistance for Operation and Maintenance of Municipal Wastewater Works--To protect the hundreds of millions of dollars worth of construction in municipal wastewater works during the last decade, it is imperative to increase the operation and maintenance skills of operational personnel. It urgently demands additional State assistance.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

See page 10.

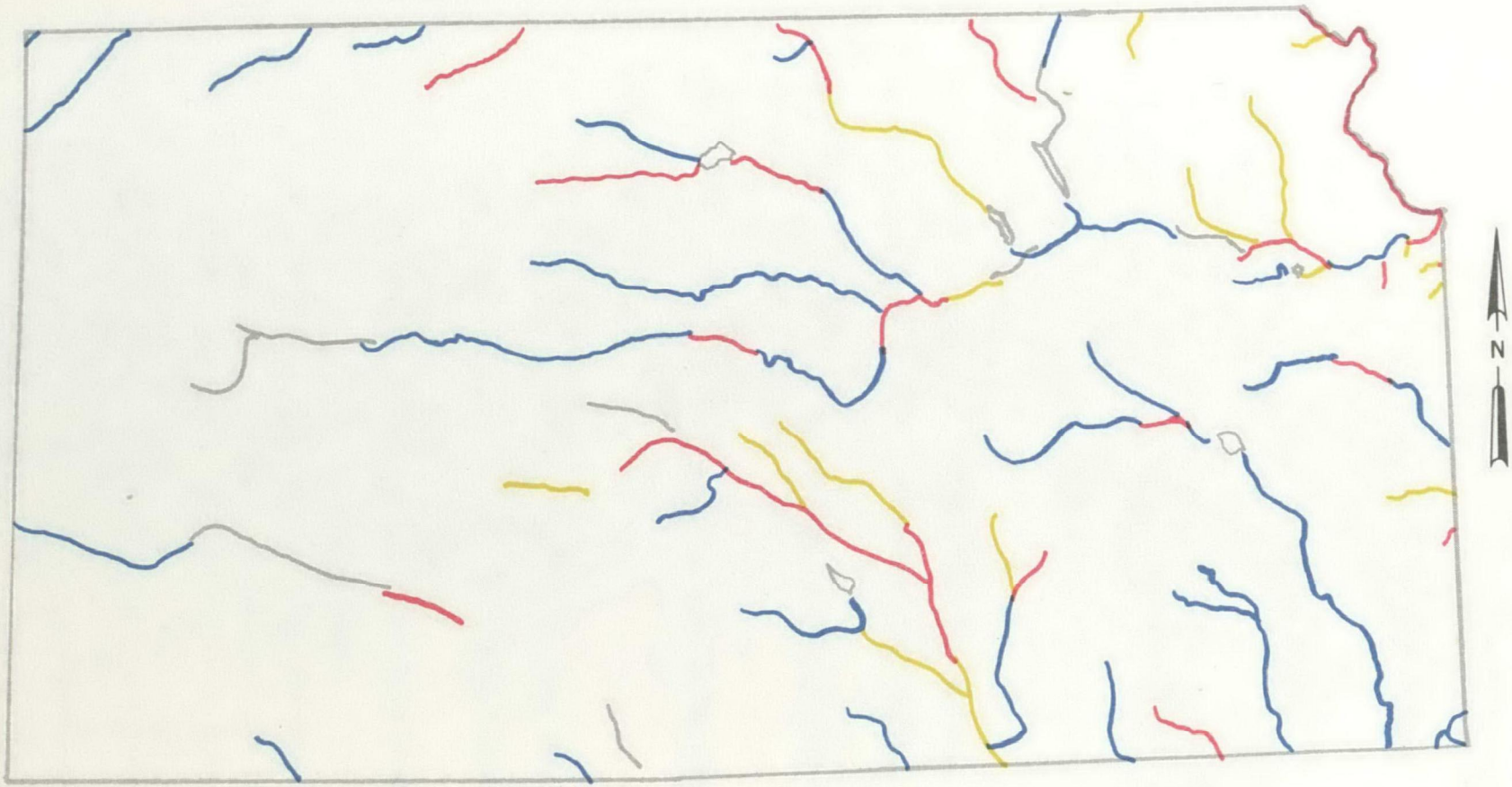
Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: KANSAS DEPT. OF HEALTH & ENVIRONMENT
Division of Environment
Forbes Field, Topeka, Kansas 66620

CONTACT PERSON & PHONE #: Gyula F. Kovach, P.E.
(913) 862-9360, Ext. 228

DATE: August 16, 1983



KANSAS
1982

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Kentucky*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,220,711 1980 3,660,257
State Surface Area 40,598 sq. miles
# of River Systems/Basins 10
# of River and Stream Miles 40,000 mi.; # of Border Miles* 862 mi.
# of Lakes and Ponds and Acreage 90 / 358,203 ac.*
# of Marsh or Wetlands ac./sq.mi. 107,000 ac. or _____ sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Ohio/664 Name/Mileage Big Sandy/27

Name/Mileage Mississippi/64 Name/Mileage Tug Fork/94

Name/Mileage Tennessee**/13
*Includes total acres of 2 border lakes (Kentucky and Dale Hollow)
**Kentucky Lake (Tennessee River miles)

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

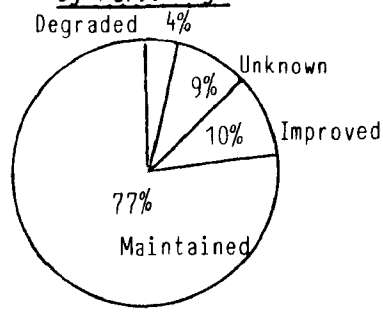
1. a. Miles Assessed: 4,820
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0*
   d. Miles Monitored: 3,329

   * Domestic water supply use applies at point of withdrawal so no mileage was calculated.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	1,770 mi.	4,330	167	62	6,329 mi.
	28%	68%	3%	1%	100%
1982	500 mi.	2,838	0	1,482	4,820 mi.
	10%	59%	0	31%	100%

3. Changes In and Within Use Support Between 1972 and 1982



	Within Category	Change in Category
Miles Improved:	530	167
Miles Degraded:	0	316
Miles Maintained:	5,674	
Unknown:	640	

B. Lakes and Reservoirs

1. a. Acres Assessed: 358,203

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0*

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

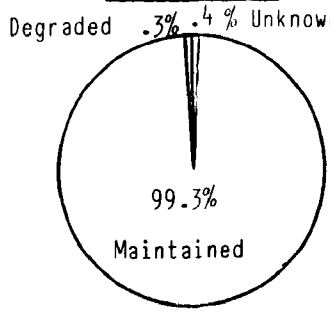
d. Acres Monitored: 345,639

* In Kentucky the domestic water supply use applies at the point of withdrawal therefore acres were not determined. Twenty seven lakes used for this puprose are in the B.2. evaluation however.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	307,300 ac.	25,613	0	9,448	342,361 ac.
	89.7%	7.5%	-	2.8%	100%
1982	324,446 ac.	31,759	573	1,425	358,203 ac.
	90.6%	8.9%	0.1%	0.4%	100%

3. Changes In and Within Use Support 1972 - 1982

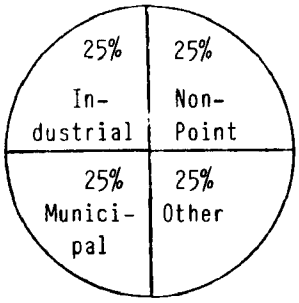


	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	703	186
Acres Maintained:	355,889	
Unknown:	1,425	

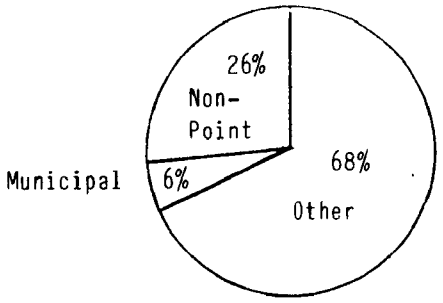
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

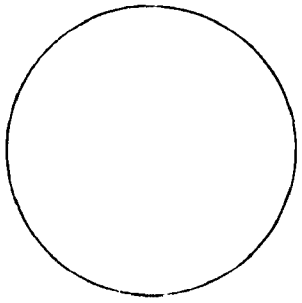
a. Streams and Rivers



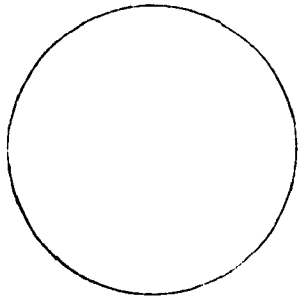
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			Toxics Metals, Nut.
Industrial						X			
Non-Point	X		X	X		X	X		Turb., Nut.
Other (inc. natural)								FE,Mn	

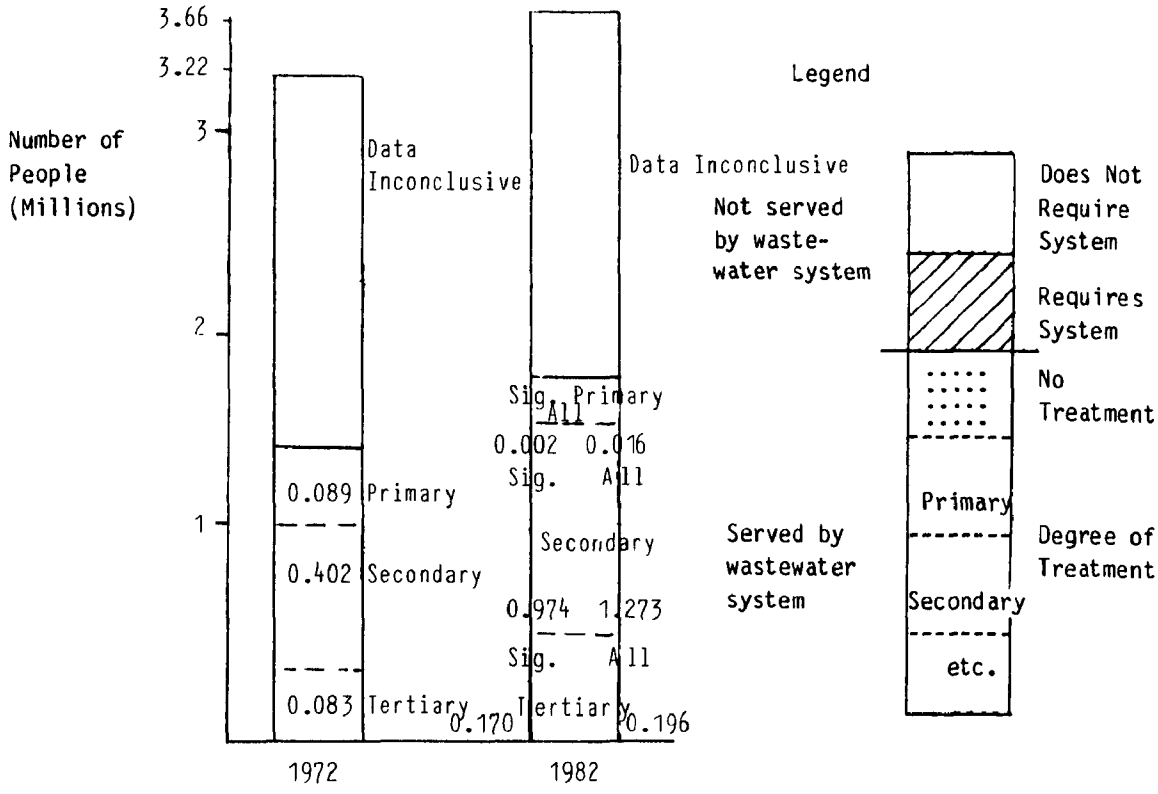
*Number of Stream/River Miles Affected by Toxics: 2,480
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

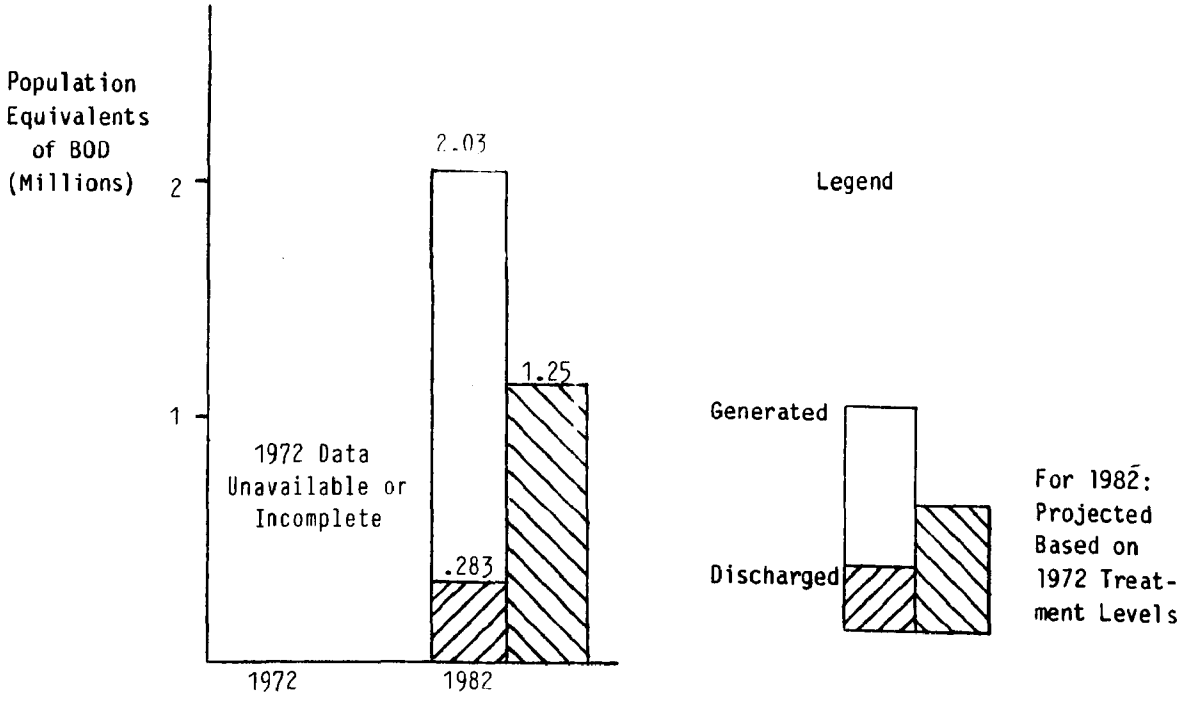
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	191*	11	53
Facilities Meeting 1982 Permit Requirements+	*	9	36
Percentage of Facilities for Which Requirements being Met	**	82	68
Percentage of Flow For Which Requirements Met+		72	35%***
Facilities Needing Upgrading	Unable to determine	11	6

Total Permits in Effect in 1982 257

*Total number of municipal dischargers permitted.

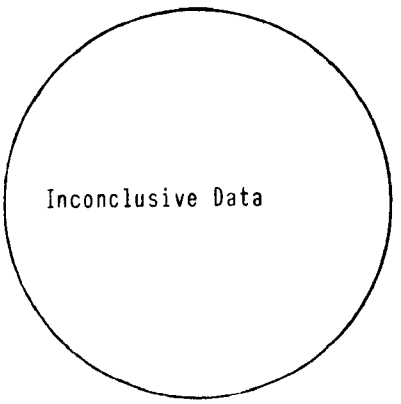
**Available data does not indicate which were significant.

***Based on design flow. Accurate actual flow figures are not consistently available.

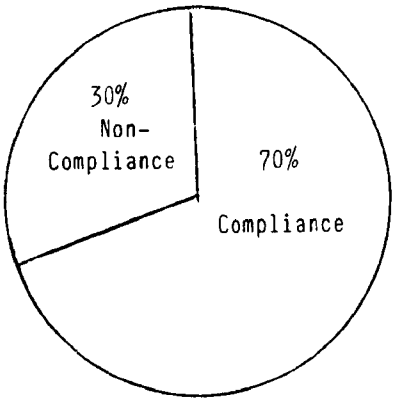
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

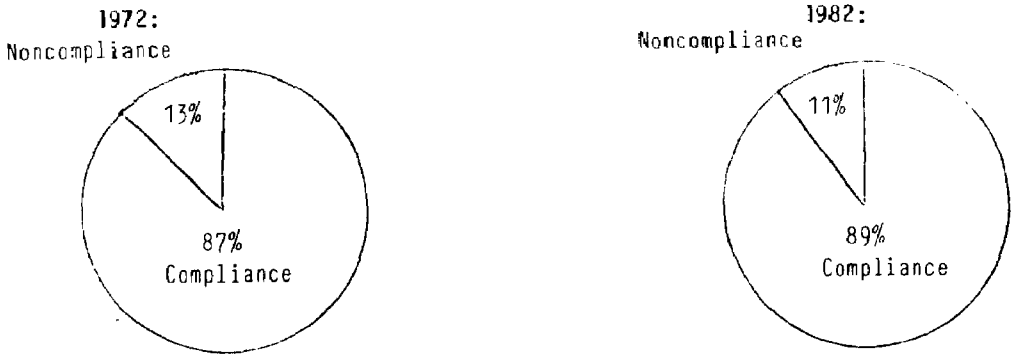
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	53	--	75
Facilities Meeting 1982 Permit Requirements+	7	--	67
Percentage of Facilities for Which Requirements Being Met	13	--	89
Percentage of Flow for Which Requirements Met+	1	--	95

Total Permits in Effect in 1982 648

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

Preliminary 208 assessment studies prepared in 1979 showed that uncontrolled nonpoint sources of pollution (NPS) from agriculture, mining, forestry, and construction pose a significant threat to Kentucky's water quality. Residual wastes, urban runoff, salt water intrusion, and hydrologic modifications, although also problems in localized areas, were not considered to pose widespread NPS-induced water quality problems.

Further studies conducted over the past two years to verify the earlier 1979 findings, indicated that water quality/stream uses in both of Kentucky's coalfields are seriously affected by acid mine drainage and high dissolved solids from coal mining. In areas of concentrated agriculture production in Kentucky, (the Purchase, Pennyroyal, and Western Coalfield Physiographic Regions), pesticide and nutrient contaminents, as well as high dissolved solids, are significant NPS pollutants. Sediment deposition is also associated with the forestry and construction industries, however, they are less significant sources than the two former industries. Generally, construction related impacts are confined to eight or nine highly urban/suburban population centers around the state. Forestry NPS problems are found in the mountainous Appalachian region and the extreme south-central portion of the Commonwealth.

In order of absolute magnitude, the agriculture NPS contributioin is the greatest, followed closely by surface mining. Construction, although a significant source on a site-specific basis, ranks third because of the temporal and spacial variability of this NPS category. The areal extent of construction is much less than other categories and it does not constitute a recurring, year-after-year impact such as agriculture. Forestry ranks fourth, with only very isolated impacts associated with road building, logging, and livestock grazing.

The Commonwealth has or is planning 5 to 6 demonstration or assessment projects: 2 for silviculture; 1 or 2 for agriculture; and 2 for groundwater impacted by mixed landuses. The Commonwealth also participates in an advisory capacity in the Tennessee Reelfoot Lake RCWP project located directly below the Kentucky border with Tennessee.

Research has also indicated that the mining category can be adequately controlled thru existing regulatory programs (ie. primacy of NPDES and the Surface Mining Control and Reclamation Act, P.L. 95-87). For agriculture, forestry, and construction, a non-regulatory approach (V) technical assistance, education and economic incentives has been chosen and is near implementation. The state is also developing (or has developed) regulatory alternatives for these categories including a model sediment control ordiance, a farm lease agreement, and a timber sale contract. These items will no be used, however, until such time as the non-regulatory approach is implemented and tested. Part of the non-regulatory approach includes a legislative proposal for a state supported cost-sharing program. The proposed legislation will hopefully be introduced and passed by the Kentucky General Assembly in the next scheduled session (1984).

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	NA/L	S/W	I/L	S/L*	M/L	NA/L	NA/L	NA/L
Primary Pollutants	**	SS/P Nut.	SS	SS/pH	SS	**	**	**

*Localized to two regions - widespread in those regions
**Not determined

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Kentucky Division of Water utilizes a broad range of methods to obtain compliance. These methods include technical assistance, notice of violation, administrative conferences at the District level with notification, administrative conferences at the Central Office level, Agreed Orders and civil penalties. In 1982-83 Agreed Orders were negotiated with compliance schedules and penalties of $71,250. In 1973, approximately $3,500 was produced from enforcement actions. Agreed Orders, compliance schedules, negative A-95 comments and tap-on bans are the most effective municipal enforcement tools. Municipalities presently held under tap-on bans amount to 13. In 1973, only 2 tap-on bans existed.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

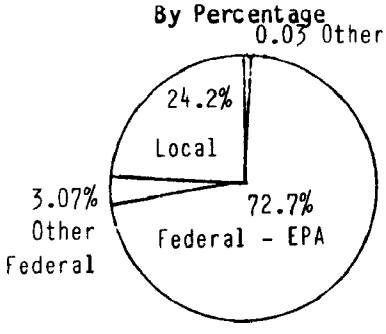
Total Number of Facilities:	27
Number of Pre-Administrative Actions:	17
Number of Administrative Actions:	4
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 542.504 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 394,134,900 Million
Other Federal:	$ 16,813,564
State:	$ --
Local Match:	$ 131,373,623
Other Local:	$ 182,234

C. Program Activities

The goal of Kentucky's water quality control programs is to prevent, abate and control pollution within the Commnwealth. Each of the major programs is discussed below.

Water Quality Monitoring Program: The monitoring program has undergone considerable changes in the past ten years. The Division initially established a series of 49 bacteriological monitoring stations at selected public water supply sites and 40 metals monitoring stations at river sites across the State in the early 1970's. At the present time the Division maintains a network of 30 monitoring stations for metals, bacteria and additional physiochemical parameters which substantially improve the Division's ability to determine trends in water quality conditions. Twelve new stations with similar parameter coverage were established through a joint agreement with the U.S. Geological Survey in 1982. Biological sampling was established at 7 of the 30 Division stations about 3 years ago. This activity is intended to be rotated approximately every two years to obtain biological information at all of the stations over time. In 1980 a lake classification survey was initiated to assess the trophic state of publicly owned lakes and their need for restoration. Other recent monitoring activities include stream surveys to aid in designating stream uses which were committed to since the adoption of new water quality standards in December of 1979.

Construction Grants Program: This program is responsible for managing the grants awarded to cities for construction of municipal sewage treatment plants by the U.S. Environmental Protection Agency (EPA). In the past 3 years Kentucky has been delegated 14 of the 20 functions required for primary responsibility to administer the program. The past 10 years can be characterized by major progress towards improving the water quality of streams and rivers affected by municipal sewage treatment plants.

Permits Program: Kentucky has been under a dual permitting program for industrial and municipal point source dischargers since passage of the Clean Water Act in 1972. Prior to that time Kentucky operated a permit system consisting of site suitability and preconstruction plans reviews, operational permits with discharge limitations and periodical submittals of self-monitoring results. This program was merged with the federal National Pollutant Discharge Elimination System to eliminate inconsistencies and conflicting requirements. As of 1982 Kentucky has approximately 3000-3500 dischargers in a computerized inventory, most of which have state permits. Nearly all major and minor industrial and major municipalities have permits under the federal system. Effective in October of 1983 Kentucky will receive delegation of authority to operate a Kentucky Pollutant Discharge Elimination System which will eliminate the duality which had previously existed.

Training and Technical Assistance Program: The Division operates a wastewater treatment training and certification program through a series of 4 day training schools at 8 regional training centers. The program curriculum enables operators to proficiently operate and maintain sewage treatment plants and includes both facility and laboratory training.

Division staff from the District and Central offices assist plants with identified operation and maintenance difficulties through telephone discussions, conferences, on site visits, and distribution of pertinent literature. A new role for technical assistance has been in emergency response. Response to spills of hazardous and toxic materials and containment of such materials has become a well organized, coordinated endeavor among state, federal, and local agencies within the past three years.

Surveillance and Enforcement Programs: In the past the Division has committed much of its resources to inspecting major facilities to see that they were meeting the conditions in their discharge permits. A review of the results of these monitoring actions indicated that most of the facilities were in compliance with their permits. During 1983 the Division has revamped its surveillance activities to direct its resources toward monitoring problem facilities. Enforcement actions are initiated at the District level, if not successful they are referred to the Cental office for further action either by the Division of Water or the Cabinet's Office of General Counsel. These steps were developed to encourage corrective action at the earliest stages of negotiations towards compliance.

VI. SITE-SPECIFIC SUCCESSES

OHIO RIVER - MOUTH OF BIG SANDY TO GREENUP LOCK AND DAM

Prior to 1972, the Ohio River from the mouth of the Big Sandy River to the Greenup Lock and Dam, a distance of 24 miles was badly degraded by partially treated and untreated wastewater from a number of municipalities and five industries. One of the municipalities contained inadequately pretreated tannery waste. A large hot roll strip steel mill with coke ovens and 120,000 bbl/day oil refinery and pertrochemical complex were part of the industrial group. Miles of highly discolored water from spent pickle liquor and large areas of oil sheens revealed, along with the physical, chemical, and bacterial analysis, the impact of the discharges. Floating solids of sanitary wastes were quite evident following rainfall events. The area generated numerous complaints from the public due to the stream's inability to provide useable recreation areas. Waste products marred boats and rendered fish inedible.

Through the efforts of joint state/Ohio River Valley Water Sanitation Commission action, an abatement time frame was developed in the beginning of the seventies for obtaining secondary treatment. A compliance schedule was developed for each discharge. Prior to 1977, all of the industries having direct discharges were in compliance with BPT requirements (permit limits) and the municipalities were well on their way to constructing their facilities. Four communities combined their efforts and eliminated three discharge points and went to a regional plant. The large municipal plant has now expanded its plant and added secondary treatment. Water quality has improved significantly and complaints have greatly diminished. The river is no longer discolored and turned red. Fish tissue studies are showing much improvement and recreation is on the upswing.

Coal Preparation Plant Discharges

In 1972 there were 65 coal preparation plants in the southeastern part of Kentucky. Practically all of these plants discharged thousands of gallons a day of black water heavily laden with suspended solids in the streams (mainly tributaries of the Kentucky River). In 1982 there were 125 coal preparations in Southeast Kentucky and all of them permitted with recirculating systems and no discharges to the streams.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Oil and gas production and its resulting brine discharge has been an historical problem in Kentucky. Efforts have been largely successful in controlling discharges in Western Kentucky but new explorations in Eastern Kentucky in the past three years has brought on new concerns. Regulations to control this industry are now being developed.

Reduction in funding for municipal sewage treatment plant construction will seriously affect the progress made towards abating pollution from these sources. At the present Kentucky is near the half-way point in controlling pollution from municipalities. Assured funding with the retaining of the 75% federal participation will continue this progress.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

To assess toxic pollutants and aid in the issuance of permit limits for their discharge Kentucky needs to develop its bioassay capability. A start has been made to develop static bioassay capability but it is in a slow developmental stage due to resource limitations and a low priority status.

The value and extent of wetland resources in the State needs further attention. A first step in this direction would be the undertaking of a comprehensive inventory of this resource.

Compared to other States in the Southeast, Kentucky's ambient network of fixed monitoring stations is small. The network needs to be expanded to obtain a better data base to evaluate the quality of unmonitored watersheds. An effort has been made through a joint agreement with the U.S. Geological Survey in establishing 12 new stations. Biological surveys at more sites also need to be initiated to establish the link between water quality and its effect on aquatic life.

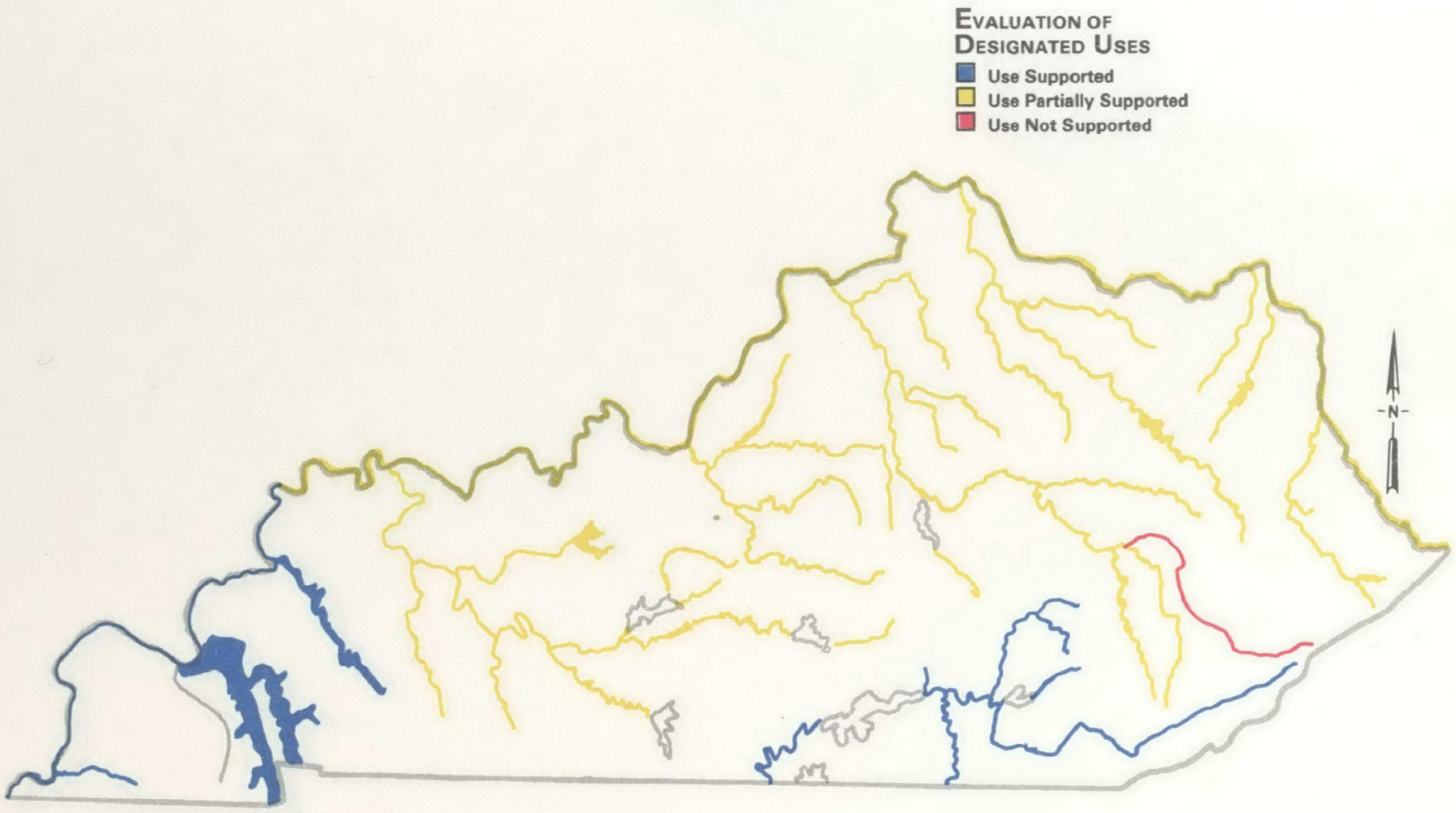
Acid mine drainage from abandoned coal mining operations has affected water uses for years in Kentucky. Water supply use and aquatic life have been negatively affected. When the funds for reclamation of abandoned lands can be directed towards improving streams that affect aquatic life, water quality improvements should result. Until that time, continued degradation will be unabated.

AGENCY PREPARING REPORT: Kentucky Division of Water
Fort Boone Plaza, 18 Reilly Road
Frankfort, Kentucky 40601

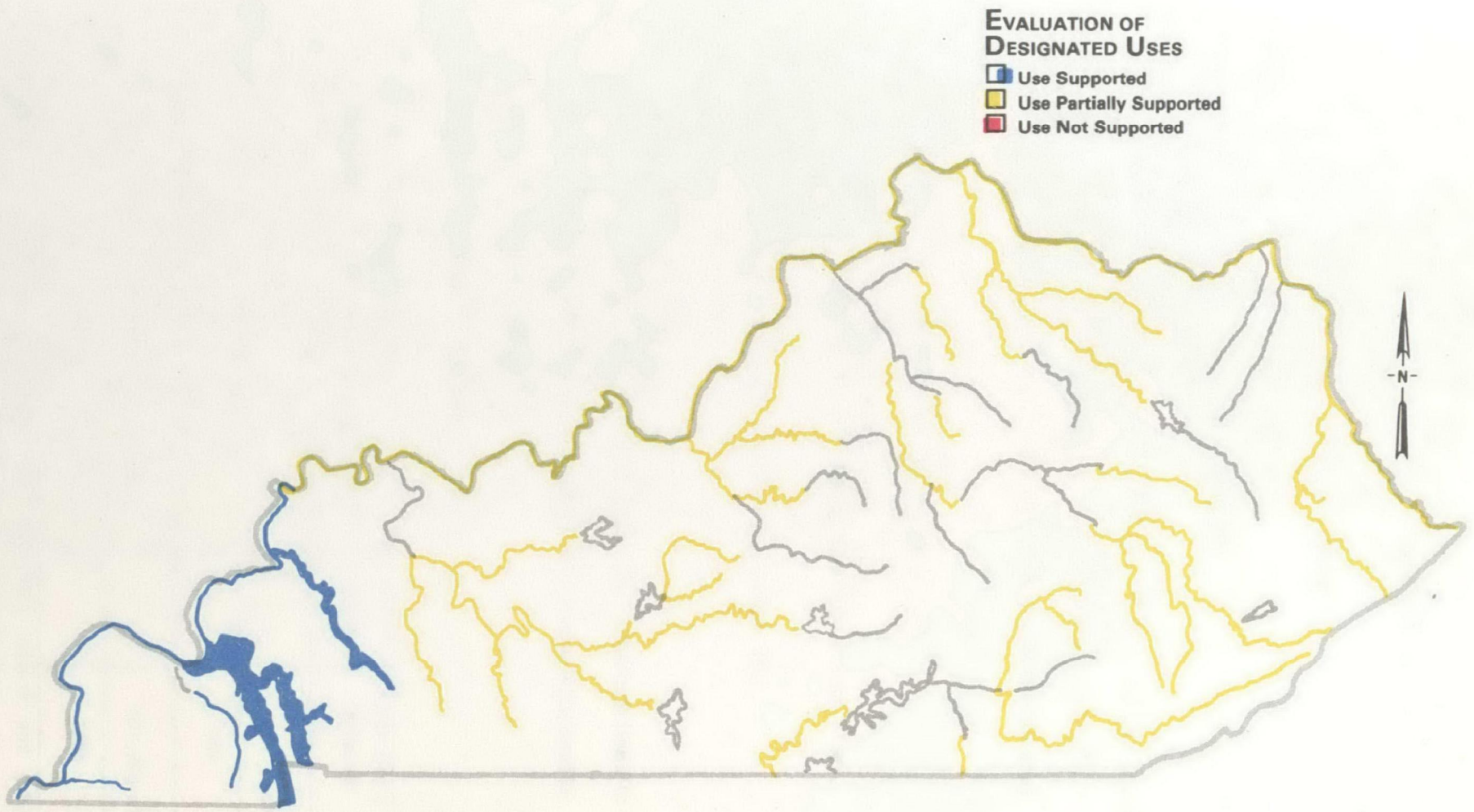
CONTACT PERSON & PHONE #: Richard T. Shogren 502/564-3410

DATE: August 3, 1983

KENTUCKY
1972



KENTUCKY
1982



State of Louisiana*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,643,180 1980 4,205,900
State Surface Area 140,978.25 sq. miles
# of River Systems/Basins 12
# of River and Stream Miles 297,748 mi.; # of Border Miles* 2,175 mi.
# of Lakes and Ponds and Acreage 116 / 453,463 ac.
# of Marsh or Wetlands ac./sq.mi. 7.5 million ac. or 11,718.75 sq. mi.
# of Coast Miles 1,700 mi.
# of Estuary sq. mi. 1,844.75 sq. mi. - tidally influence, saline marshes

*Border Rivers:

Name/Mileage Pearl/365 Name/Mileage Mississippi/1,070

Name/Mileage Sabine/740 Name/Mileage _____

NOTE: These are the length of the mainstream segments for each river.

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 297,748
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,250
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: unknown

2. Evaluation of Support of Designated Uses

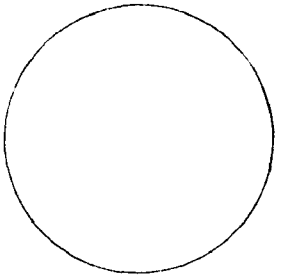
	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
**1982	170,103 mi.	119,099.2	8,545.8		297,748 mi.
	57.13 %	40%	2.87%		100%

* Freshwater, nontidally influenced lakes (publicly owned) and publicly owned impoundments all greater than .25 square miles in size.

** See note page 11.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 1,482,617

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

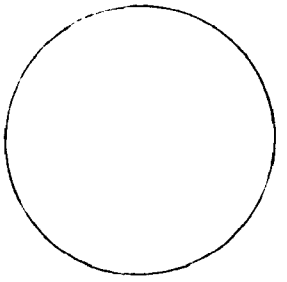
d. Acres Monitored: unknown

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
	%				100%
1982	ac.				ac.
	%				100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

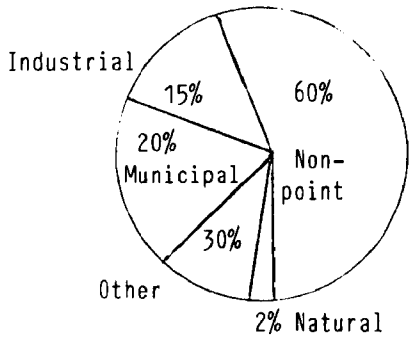


	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

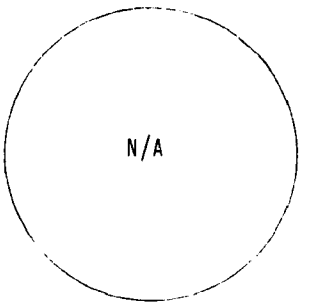
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

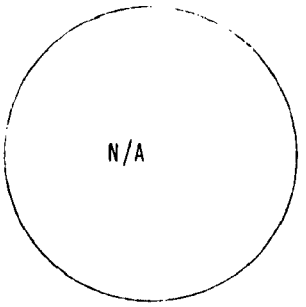
a. Streams and Rivers



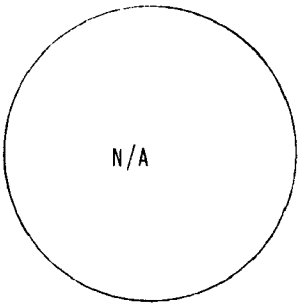
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli.,D.O.
Industrial		X			X	X		Color	Toxics
Non-Point		X	X			X			Nut.,Tox.
Other (inc. natural)		X		X					D.O.

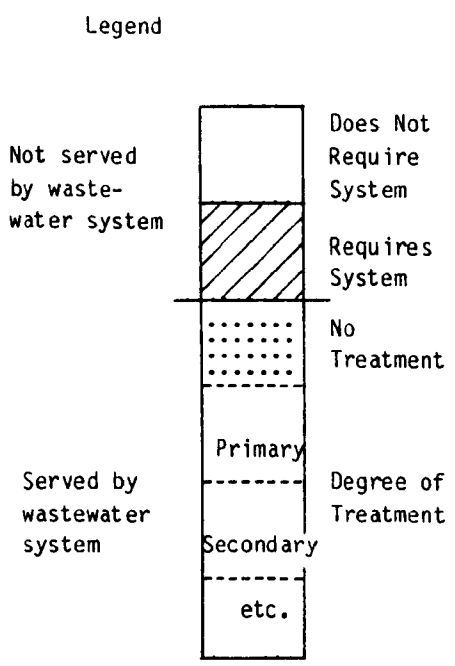
*Number of Stream/River Miles Affected by Toxics: N/A
*Number of Lake/Reservoir Acres Affected by Toxics: N/A
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

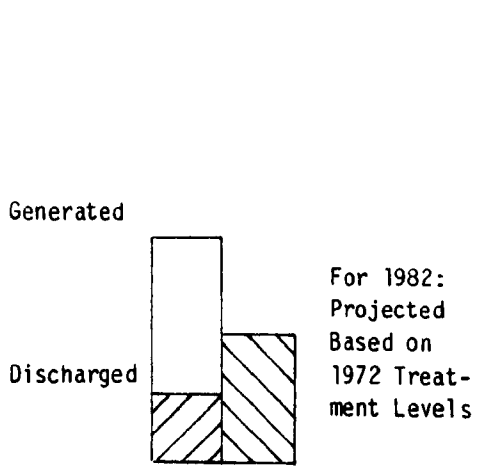
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

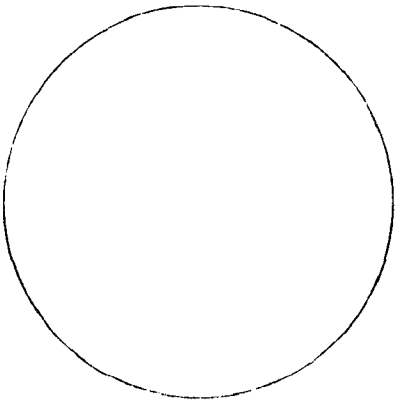
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits				Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+				
Percentage of Facilities for Which Requirements Being Met				
Percentage of Flow For Which Requirements Met+				
Facilities Needing Upgrading				

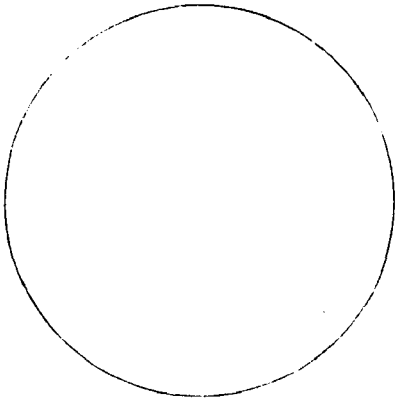
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

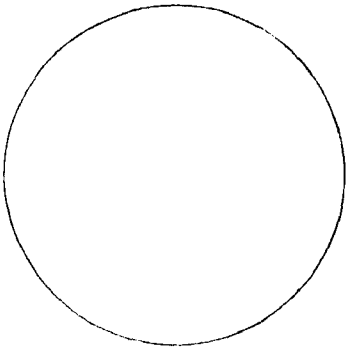
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits				Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+				
Percentage of Facilities for Which Requirements Being Met				
Percentage of Flow for Which Requirements Met+				

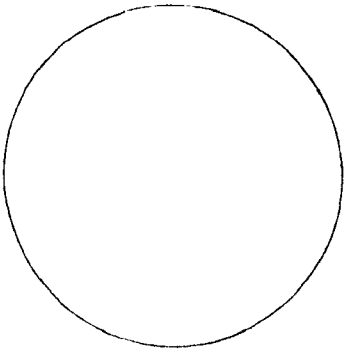
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The Water Pollution Control Division (WPCD) nonpoint source pollution programs begin with the Statewide fixed station monitoring network for ambient water quality. Monthly collections are made under this network at 120 locations throughout the state and laboratory analyses of water samples are conducted for (among others) indicative nonpoint source parameters such as suspended solids, turbidity, conductivity, metals and nutrients. As a complement to the monthly monitoring network, semi-annual collections of aquatic biota (mostly fish) are made at 72 locations throughout the State and analyzed for a range of organic compounds including agricultural pesticides and other compounds indicative of a nonpoint source pollution problem. Other monitoring programs designed for more specific purposes than the fixed monitoring network also contribute to nonpoint source pollution detection. These include intensive surveys, special studies and compliance assurance investigations.

Following data collection assessment is made using such documents as the Water Quality Inventory Report required under Section 305(b). Reporting and the results of the WPCD nonpoint source management planning activities are contained in the Section 208 Continuing Planning Process. The following table presents 8 identified and evaluated categories and listed as a high or secondary priority problem.

Nonpoint Source Pollution Categories

High Priority

1. Agriculture lands (soil and pesticide runoff)
2. Urban areas (urban and industrial stormwater runoff)
3. Residual waste (sewage, industrial sludge; septic tank fields)
4. Saltwater intrusion and encroachment (coastal erosion, groundwater contamination)

Secondary Priority

5. Hydrologic modification (canal dredging)
6. Construction sites (soil erosion)
7. Mining sites (mineral extraction)
8. Silviculture

The results of an ongoing progress of nonpoint source management planning activities are also contained in the Section 208 Continuing Planning Process. The Section 208 Grant is dedicated to nonpoint source programs. The Water Pollution Control Division coordinates and contractually works with many state agencies and outside consultants for developing best management practices for various activities or problems such as silviculture and agricultural pesticide runoff.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S, L	S, W	I, L	M, L	M, L	M, L	M, L	M, L
Primary Pollutants	C,M,Nut Oxde,O'	Nut,P SS,T	SS,T	SS,T	SS,T	Ox,De, Sal	Sal	C,Nut OxDe

O' - Polynuclear Aromatic Hydrocarbons and other Antropogenic Organic Compounds

WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Louisiana has an aggressive enforcement program in order to ensure compliance with state laws. Enforcement actions include issuance of Notices of Violation, Compliance Orders and Cease and Desist Orders, as well as civil and criminal penalties. In cases involving violations of state and federal laws, enforcement actions are coordinated with EPA Region VI in order to maximize efficiency of the limited personnel and resources. A substantial part of the state's enforcement activities are devoted to the control of pollution from oil and gas production. Most enforcement actions, including assessment of civil penalties, are handled administratively. Civil suits are conducted by the Louisiana Department of Justice. Criminal prosecutions are handled by the District Attorneys in whose jurisdiction the violation occurred.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

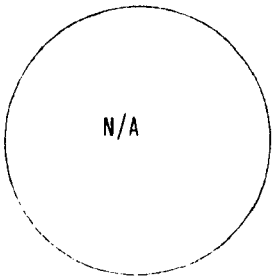
Total Number of Facilities:	175
Number of Pre-Administrative Actions:	25
Number of Administrative Actions:	154
Number of Judicial Actions:	11

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 556 Million (Total not tabulated, but in excess of $556)

By Percentage



Categories of Sources

Federal - EPA:	$ 417,000,000 Million
Other Federal:	$
State:	$
Local Match:	$ 139,000,000*
Other Local:	$

*Estimate from EPA Match Requirement

C. Program Activities

In the past, Louisiana water quality protection has been less than desirable. Wastes from homes, factories, businesses and eroding lands resulted in the deterioration of water quality in many areas. Many streams and lakes became too polluted for fishing or swimming, undesirable for boating and too dirty to be attractive. Sources of pollution such as urbanization, industrial and agricultural production, oil and gas development, silviculture, mining and hydrologic modifications are identified and are increasing in growth.

Solutions for many of these problems have been formulated and implemented following the goals of the Federal Clean Water Act which established programs for the development of cost effective solutions in an effort to meet national, State and local water quality objectives. The following is a summary of the State's efforts in its water quality management program.

The WPCD is actively engaged in Water Quality Management Planning activities which enable the State to utilize funding and technical expertise provided from all sources in the most effective manner for achieving the objectives of the Clean Water Act and the State Water Control Act. It is the purpose of these activities to:

- Establish and maintain water quality goals and standards which will protect the designated uses of waterbodies within the State;
- Coordinate and systemize the State's efforts toward meeting water quality goals;
- Provide a mechanism to optimize the use of water pollution control resources;
- Establish priorities for abatement and prevention needs.

The monitoring program is designed to measure progress towards achieving water quality goals at the state and national levels, to gather baseline data used in establishing and reviewing the State Water Quality Standards, to provide a data base for use in determining the assimilative capacity of the waters of the State, and to document violations of state and federal laws and regulations. Information is also used to establish permit limits for wastewater discharges. A summary of data developed from the monitoring program is reported in the Water Quality Inventory Report as required under Section 305(b) of the Clean Water Act.

Lake studies are being conducted as part of the Lake Classification and Inventory Program under Section 314 of the Clean Water Act. The State of Louisiana is currently in the process of developing a trophic index based upon data being collected from nine (9) lakes and data available for sixteen (16) lakes sampled for the National Eutrophication Study. Data developed from this study will be used in evaluation and classification of lakes in terms of the trophic condition of each lake relative to all others throughout the State.

A Diagnostic/Feasibility study is being conducted on Lake Buhlow located in the Alexandria-Pineville area. The study is being carried out by the Rapides Area Planning Commission with the WPCD performing an overall program management function. Preliminary data indicate that Lake Buhlow has severe nonpoint source water quality problems. Restoration funds are being sought through EPA for the restoration phase of this project.

A complaint situation may require emergency spill response depending upon the severity of impact on the environment, the potential for human health hazards, or impact to private or public property. The WPCD is the State's designated member of the State/Federal Regional Response Team (RRT). This team provides advisory and policy inputs contingency planning and

spill response activities. WPCD as the designated agency coordinates with other state and local agencies that provide scientific expertise and capabilities for spill response. The Hazardous Waste Division of the Office of Environmental Affairs is the lead environmental contact agency for emergency response to spills and other releases of hazardous substances. WPCD provides advice and technical support to the Hazardous Waste Division and Federal agencies such as EPA and the U.S. Coast Guard when spills occur on State waters, or when spilled substances have the potential to enter State waters.

The WPCD provides personnel with expertise in biology, chemistry, engineering, and environmental science to develop sampling strategies and collect and analyze samples. These personnel assess clean-up strategies and provide background information on the chemical, physical, and toxicological properties of the spilled substance. Water-related spills require an initial response effort of one to three man days. Response support requires at least two man-years of effort each year from WPCD staff.

Permits are official authorization developed and promulgated by the Water Pollution Control Division, which establishes the wasteload content of wastewaters discharged into the waters of the State. The permitting activities of WPCD have been established pursuant to the Louisiana Environmental Affairs Act (LRS 30:1051 et seq.), and are carried out in conformity with federal regulations authorizing the National Pollutant Discharge Elimination System (NPDES) of legal wastewater discharge controls through issuance of individual discharger permits. A permit is required for every point source discharge into the waters of the State of Louisiana. The permitting process allows the State to control the amounts and types of wstewaters discharged into its surface waters.

The involvement of all interested publics in any activity concerning rulemaking or plan development for public-owned natural resources is both necessary and advantageous for a public agency responsible for the conservation and management of those natural resources. Not only is it important that the public or other affected parties be informed of the activities of the agency; as well they must have made available to them both ample opportunity and appropriate format (or platform) for the expression of opinions and/or suggestions concerning the agency's activities. Section 101(e) of the Clean Water Act stipulates that public participation be included as an integral part of most activities carried out under the requirments of the Act. Further details of the activities and specific requirements to be effected by public participation programs are published in 40 CFR Part 25.

The Water Pollution Control Division in its public participation effort complies with the intentions and requirements of both Section 101(e) of the Clean Water Act and the 40 CFR 25 public participation regulations. The various activities carried out for the purpose of public participation effectively offer to the public the opportunity and format for being informed of Division activities, and for having input into those activities. The effort offers public participation in the development, revision, and enforcement of regulations, standards, effluent limitations, plans, and programs.

Past Government Accounting Organization (GAO) Reports have indicated that a significant number of the POTW's constructed in this State with P.L. 92-500 funds were not meeting their design effluent criteria or their NPDES permit criteria. Studies such as the 1980 report by Hegg et al identifies operations and management problems occurring because O & M personnel need improved plant operator training programs. We feel that it is incumbent upon the State to provide site-specific training to the municipalities in our State who have facilities constructed with P.L. 92-500 funds and are having problems meeting their effluent criteria. Our chief problem is the availability of funds to perform the tasks necessary to bring the problem-plagued POTW's into initial as well as continuing permit compliance.

The State of Louisiana does not have a State Training Facility for operator training, however, the Legislature has recently authorized studies which should result in the establishment of such a facility.

VI. SITE-SPECIFIC SUCCESSES

Water Quality Management and the Mississippi River

The quality of natural resources, including water, has become an issue of national concern, particularly in areas in which a water supply serves multiple purposes. The Mississippi River between Baton Rouge and New Orleans exemplifies the situations of an important water source that is used for a variety of sometimes incompatible purposes, such as transportation, municipal and industrial water supply and disposal of municipal and industrial waste, as well as recreation and fish and wildlife propagation.

About 100 private industries are located in the Mississippi River corridor region extending from Baton Rouge to New Orleans. Many of these facilities use river water for industrial processes and also discharge wastewater into the stream, as do numerous municipal treatment facilities. Because the river is the drinking water source for several cities below Baton Rouge, including the City of New Orleans, the existing water quality condition of the river is of great concern to city residents, State legislators, environmental groups, and industry.

Three important factors were identified that affect water quality in the corridor region: (1) activities occurring within the Mississippi River drainage basin; (2) wastewater discharges occurring in the corridor region; and (3) the legal regulatory framework governing water pollution control efforts.

Thorough examination of the records that both industrial and municipal dischargers are required to submit to the Louisiana Division of Water Pollution Control (WPC) and EPA, and proprietary industry information, has allowed evaluation of the progress of dischargers toward improving the quality of their effluents. It would appear that the existing laws and regulations have been a prime factor in promoting improvement because as the regulations have become more stringent, the discharge quality has improved. Most monitored parameters have indicated a dramatic and consistent decrease in the amount of materials discharged to the river and in most cases the reductions are 90 percent or more.

Based on existing information, river water quality in the corridor area meets established water quality standards (see Section IV).

Available discharge data from EPA and industrial sources are in agreement and show:

- There have been significant increases, during the past decade in the number of facilities permitted to discharge into the river and in the production at existing facilities.
- Nevertheless, all monitored parameters except flow and total suspended solids (TSS) have shown dramatic decreases (see Fig. XXVII and Table 13, Section VI).
- Violations resulting in large settlements have increased. This is probably due to more stringent reporting requirements and increased penalties for not reporting.
- Dischargers to the Mississippi River along the corridor have demonstrated, in 1981, a 98+ percent compliance record.
- The promulgation and enforcement of water quality regulations has significantly impacted the quality of industrial effluents in the corridor area.

- Corridor industries have spent over $1 billion dollars since 1965 to construct wastewater treatment facilities which incorporate best practicable technologies and in 1981 spent over $128 million to operate and maintain these facilities.

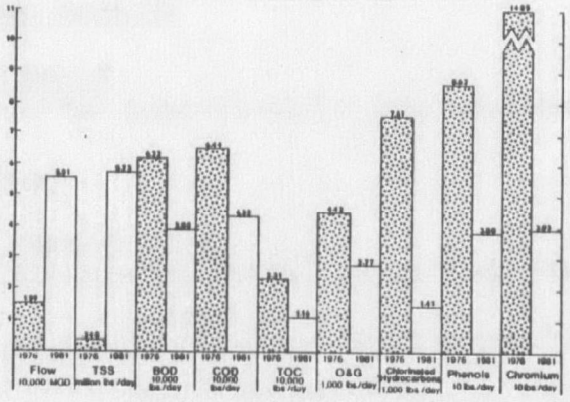
Problems do still exist with the Mississippi River along with the other waterbodies in the State. However, legislative and regulatory efforts as exampled here have resulted in the prevention of the Mississippi River from degrading in water quality even during a period of rapid industrial and economic growth in Louisiana. Continuing efforts and more stringent criteria are proceeding to maintain and restore Louisiana's waters for the utilization and enjoyment of the State's various users.

Table 13

DISCHARGE REDUCTIONS
1981 RELATIVE TO 1965-1970

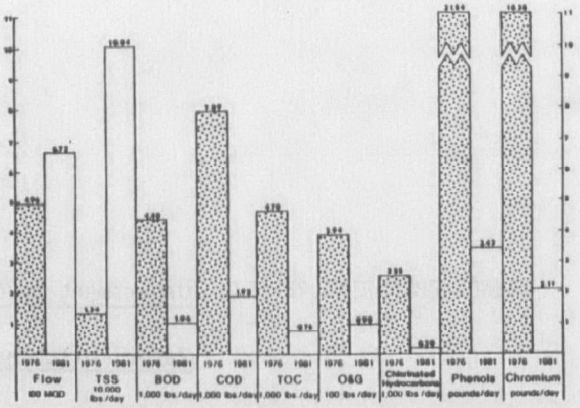
Parameter	Total Percent Reduction	Per Plant Percent Reduction
Total Suspended Solids	56.0	76.0
Chemical Oxygen Demand	93.0	96.0
Biochemical Oxygen Demand	81.0	94.0
Chlorinated Organics	93.0	99.0
Chromium	99.9	99.9
Phenol	98.0	98.3
Pesticides	86.0	86.0
Benzene	88.0	94.0
Toluene	92.0	97.0
Oil and Grease	90.0	94.0
Residual Chlorine	35.0	79.0

Sources: LCA Questionnaire; and Gulf South Research Institute.



Sources: EPA DMR files; and Gulf South Research Institute.

Figure XXVII. TOTAL AVERAGE LOADINGS OF CORRIDOR FACILITIES, 1976 AND 1981



Sources: EPA DMR files; and Gulf South Research Institute.

Figure XXVIII. TOTAL AVERAGE LOADINGS PER FACILITY, 1976 AND 1981

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

A. Toxic pollutants associated with drinking water
B. Municipal sewerage
C. Groundwater utilization and contamination

Part B. Major Remaining Problems:

____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
__X__ - Groundwater resource quality protection or supply assurance.
__X__ - Identification and control of toxic pollutants from industrial and non-point sources.
__X__ - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Department of Natural Resources
Water Pollution Control Division

CONTACT PERSON & PHONE #: Robert P. Hannah 504/342-6363

DATE: October 12, 1983

State of Maine*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

StatePopulation 1970 993,772 1980 1,125,030
StateSurface Area 33,562 sq. miles
# of River Systems/Basins 9
# of River and Stream Miles 31,806 mi.; # of Border Miles* 290 mi.
# of Lakes and Ponds and Acreage 5,770 / 994,560 ac.
# of Marsh or Wetlands ac./sq.mi. 579,743 ac. or 905.8 sq. mi.
# of Coast Miles 3,500 mi.
# of Estuary sq. mi. 1,820 sq. mi.

*Border Rivers:

Name/Mileage St. Croix/108 Name/Mileage SWBR St. John R/35

Name/Mileage St. John R./97 Name/Mileage Piscataqua-Salmon Falls R/38

Name/Mileage N.H.Border Lakes /12

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 2,011
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,210
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 801
   d. Miles Monitored: 1,645

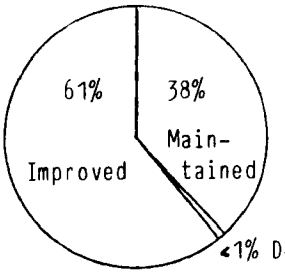
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	752 mi.	637	622	---	2,011 mi.
	37%	32%	31%	---	100%
1982	1,275 mi.	727	9	---	2,011 mi.
	63%	36%	1%		100%

Based on best professional judgment

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	(5.7) 115	52% 1,053
Miles Degraded:	(.3%) 6	0
Miles Maintained:	(41%) 844	
Unknown:	---	

B. Lakes and Reservoirs

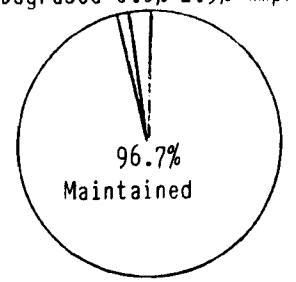
1. a. Acres Assessed: 928,325 (1838 lakes)
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 928,325 (1838 lakes)
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 300,168 (244 Lakes)

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	904,965 ac.	15,305	8,055	---	928,325 ac.
	97.5%	1.6%	<1%		100%
1982	908,007 ac.	20,318	0		928,325 ac.
	97.8%	2.2%	0		100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	15,305(1.65%)	8,055 (.87%)
Acres Degraded:	6,147 (.7)	1,097 (.1)
Acres Maintained:	897.72 (96.7)	
Unknown:	2,506 (.27)	

Based on best professional judgement.

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	1,820	/ 3,500
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	1,745	/ 3,356
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	76	/ 144
	d. Sq. Mi./Miles Monitored:	52	/ 107

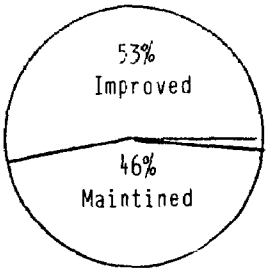
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	503/1,054	903/1,736	387/710		1,820/3,500 mi.
	30%	49%	21%		100%
1982	748/1,438	967/1,860	105/202		1,820/3,500 mi.
	41%	53%	6%		100%

3. Changes In and within Use Support Between 1972 and 1982

a. Estuaries:

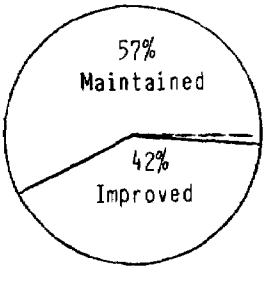
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	400	564
Sq.Mi.Degraded:	20	0
Sq.Mi.Maintained:	836	
Unknown:		

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	780	693
Miles Degraded:	10	0
Miles Maintained:	2,017	
Unknown:		

*based on best professional judgment

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

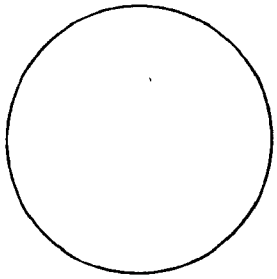
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

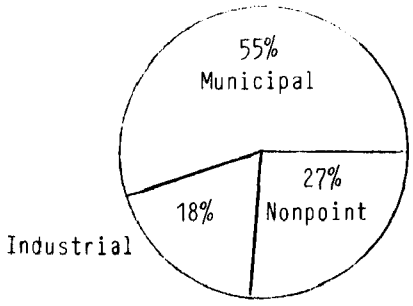


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

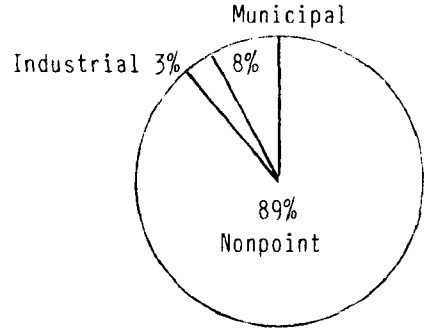
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

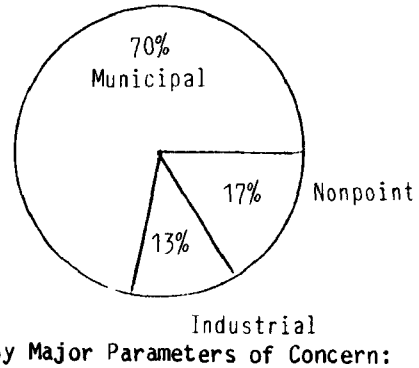
a. Streams and Rivers



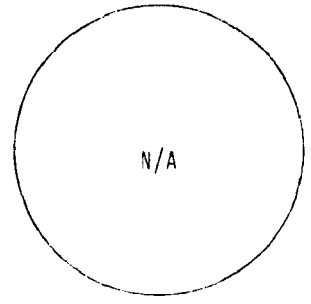
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X		X			X			FC, NUT
Industrial		X	X	X	X	X	X		DO, COLOR
Non-Point	X	X	X				X		FC, NUT
Other (inc. natural)				**	X	X			pH, TEMP

**Acid Precipitation

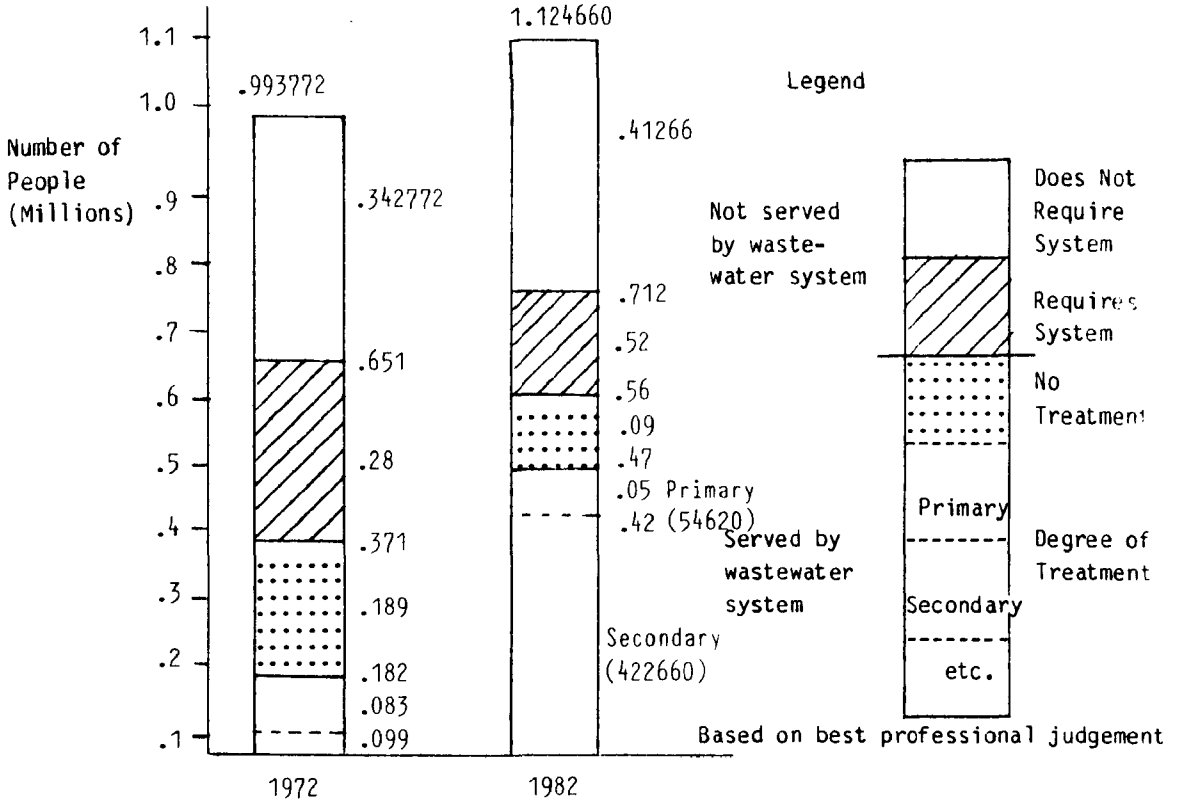
*Number of Stream/River Miles Affected by Toxics:	7
*Number of Lake/Reservoir Acres Affected by Toxics:	-
*Number of Estuary Square Miles Affected by Toxics:	-
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	-

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

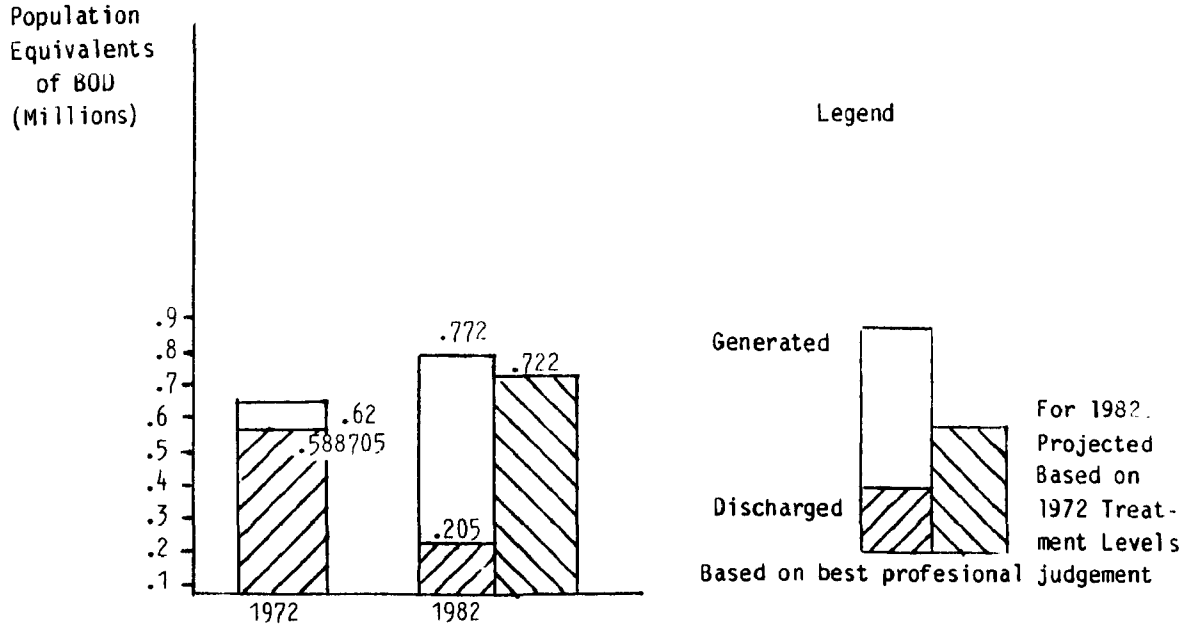
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

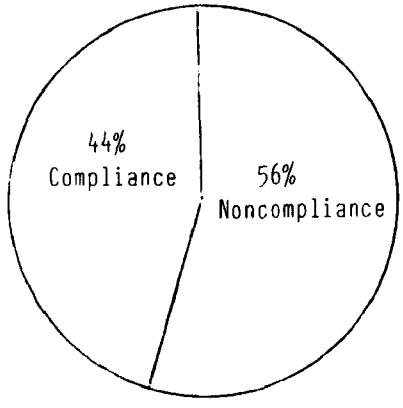
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	18	4	22
Facilities Meeting 1982 Permit Requirements+	8	4	19
Percentage of Facilities for Which Requirements Being Met	44%	100%	86%
Percentage of Flow For Which Requirements Met+	38%	100%	86%
Facilities Needing Upgrading	8	4	0

Total Permits in Effect in 1982 150

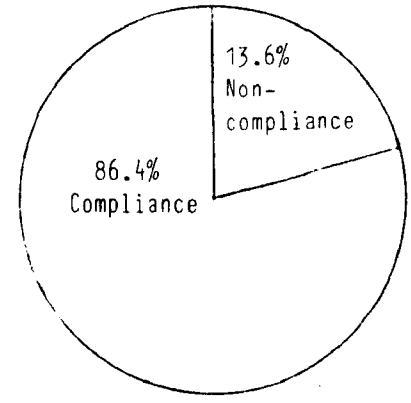
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

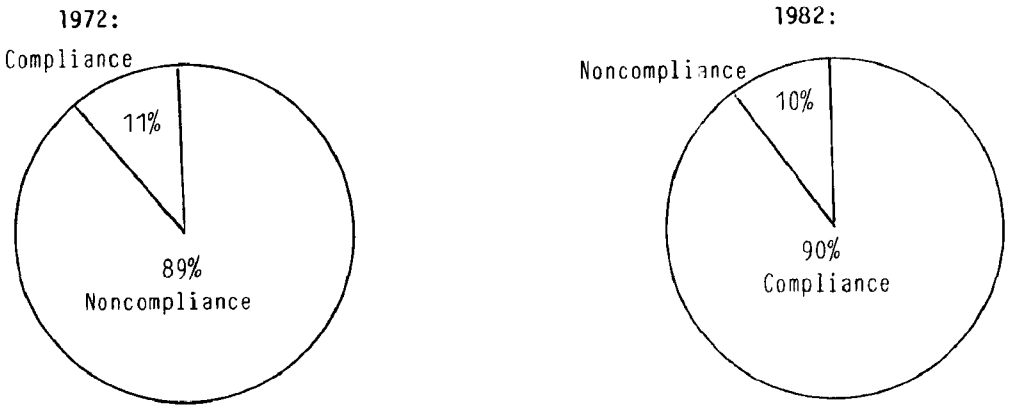
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	18	0	32
Facilities Meeting 1982 Permit Requirements+	2	0	29
Percentage of Facilities for Which Requirements Being Met	11%	N/A	90%
Percentage of Flow for Which Requirements Met+	0	N/A	88%

Total Permits in Effect in 1982 335

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

Since 1972, Maine citizens have become much more aware of the role of nonpoint sources in the degradation of the State's waters. Both the Areawide Water Quality Management Program and the Non-designated Water Quality Management Program did much to educate the public on nonpoint source pollution and methods to control it. As towns and industries have cleaned up their point and source wastewater discharges, the previously overshadowed impacts of nonpoint source pollution have in many locations become more obvious.

A succession of Maine legislatures since 1969 has enacted a number of laws that control certain land-use activities including those likely to result in nonpoint pollution. Many of these laws depend for their success upon the active cooperation of citizens, local officials and regional and state agencies. Moreover, federal programs, particularly those of the U.S. Department of Agriculture have been pivotal in the control of nonpoint source related pollution in Maine. Most of the 208 water quality plans concluded that, in general, existing laws and regulations were more than sufficient for controlling nonpoint pollution provided they were properly enforced or administered.

Agriculture is the most significant land-use activity in Maine in terms of nonpoint pollution. Since 1972 the agricultural sector has done much to reduce its water quality impacts. Since 1979 a total of 297 farms many of them in watersheds of eutrophic lakes, have improved their dairy manure management systems. Also, soil erosion declined by 18% since 1979, when the first study of Nonpoint Agricultural Pollution was conducted, and sheet and rill erosion has dropped by roughly 301,000 tons per year (16.4%). Maine's legislature recently voted to allocate $100,000/year for 2 years to Maine's Soil and Water Conservation Districts to step up efforts toward agricultural nonpoint source controls.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/w	I/W	I/L	M/L	S/L	NA	S/L
Primary Pollutants	C,NUT SS.T	C,NUT,TP Ox De SS	SS.T P T	M.SS	SS NUT T	Loflo	O*	M,pH,SS NUTS

O* = NaCl

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Maine DEP uses a 3-level approach to enforce state water quality laws. Many cases are settled at level 1 by use of informal preenforcement action. Serious or recurring violations are next handled at the second level. DEP staff coordinates a series of pre-administrative steps to obtain voluntary compliance. Unresolved cases are sent to the third level where DEP Water Bureau's Enforcement Division initiates one of several possible administrative enforcement actions. Often such cases are resolved by a consent agreement wherein the violator submits to a compliance schedule worked out by DEP staff. Cases not resolved by such actions are referred to the Attorney General's Office for prosecution through the State court system.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

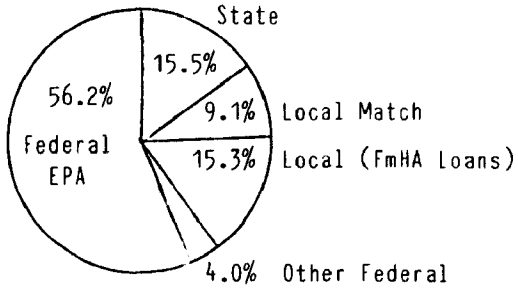
Total Number of Facilities:	15
Number of Pre-Administrative Actions:	15
Number of Administrative Actions:	7
Number of Judicial Actions:	6

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 436.252 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 245.053 Million
Other Federal:	$ 17.275
State:	$ 67.471
Local Match:	$ 39.588
Other Local:	$ 66.865

C. Program Activities

Maine DEP is involved in a number of programs aimed at restoring or protecting water quality. Following is a partial listing of water quality programs administered by DEP.

Construction Grants - Maine DEP has assumed responsibility for running the "Construction Grants" Program, which targets federal (EPA) and State dollars to towns which need sewage treatment facilities. A total of 78 towns are included on the State's priority list of projects to be funded.

Small Facilities Program - This program provides up to $100,000 per town for small sewage treatment works, primarily individual and clustered septic systems and sand filter systems. A total of $1 million of state money per year for the next 2 years is available at a 90% cost-share rate.

Sludge Utilization Program - Forty nine towns and several industries are participating in this program which promotes the agricultural use of treatment plant sludge having acceptably low contamination levels.

Permits Program - DEP and USEPA closely coordinate their respective wastewater discharge permitting programs. At present both agencies issue permits to principal industrial and public dischargers, after selecting which agency will take the lead. DEP is proceeding with its takeover of the National Permit Discharge Elimination System (NPDES) from Region I EPA.

Monitoring - The Department monitors water quality, using both chemical and biological measurements, to provide both site-specific and trend data needed for planning licensing, enforcement, and construction grants. Monitoring supports a number of efforts including the program to revise and update the classifications assigned to the State's water bodies.

Lakes - The DEP sponsors an extensive voluntary lake monitoring effort. Over 300 volunteers take part in DEP's Lake Lay Monitoring Program, providing DEP with an invaluable "early warning system" for lake water quality. Also, Department staff conduct "baseline" monitoring to determine nutrient sources form the basis of "Diagnostic Studies" for eutrophic lakes.

Operations and Maintenance - The DEP conducts facility inspections, discharge monitoring, technical assistance, training and enforcement if necessary, to ensure that municipal treatment facilities comply with their effluent limits. DEP conducts an annual major inspection of each municipal treatment plant, including evaluation of both effluent quality and operation and maintenance procedures. Also, one or two minor inspections provides assistance to problem facilities on a "worst first" basis. The DEP conducts training sessions on monitoring procedures, compliance evaluation inspections, and operating techniques, as well as seminars aimed at treatment facility operators.

VI. SITE-SPECIFIC SUCCESSES

Lakes

1. Sebasticook Lake - Maine's most severely eutrophic lake is presently undergoing a major restoration effort involving agricultural controls and autumn lake level drawdowns to reduce its overall phosphorus loading. Effort is expected to result in reduction of algal blooms.
2. Annabessacook Lake - In 1977 following installation of watershed agricultural controls DEP, in cooperation with the Cobbossee Watershed District conducted an extensive in-lake effort to inactivate in-lake phosphorus levels through alum applications. Since 1977, algae blooms, once an annual occurrence, have not been observed in Annabessacook Lake.
3. Salmon Lake - This is another excessively productive lake which has not bloomed over the past few years following the application of watershed controls.

Maine Coast

In 1972 hundreds of residence and small businesses along Maine's Coast discharged untreated sewage into coastal waters, forcing the closure of thousands of acres of commercially valuable shellfish harvesting area. Since then, the State has been putting a great deal of effort into identifying and cleaning up these pollution sources. The Department of Marine Resources conducted a 5-year coastal sanitary survey which pinpointed hundreds of violations. At the same time DEP redirected its Municipal Sewage Treatment Facility Construction Program and enforcement efforts to focus on coastal discharges. As of 1982 these combined efforts had paid off in the reclamation of over 4000 acres of soft-shell clam flats worth an estimated $6,600,000 per year in standing crop alone. Although major work remains to be done, the results thus far are viewed as a major success.

Kennebec River

Water quality in the once-sick Kennebec River has improved dramatically since 1972. By 1978 most of the larger industrial and municipal dischargers along the river were applying secondary treatment to their wastewaters. DEP conducted an intensive study in 1978 that statistically confirmed the public's perception that a huge improvement had occurred. Odors and floating solids are gone, Atlantic Salmon and other wildlife have returned and towns once again regard the Kennebec as a valuable resource rather than a liability. Each summer since 1979 thousands of revelers in outlandish watercraft take part in Augusta's "Great Kennebec Whatever Race" to celebrate the return of the Kennebec to the people.

Penobscot River

Maine's largest river has improved tremendously since 1972. The Penobscot's once-famous Atlantic Salmon run had been wiped out by the 1940's. As treatment plant construction proceeded during the 1970's Atlantic Salmon began returning to the Penobscot River in ever increasing numbers. The Penobscot River clean-up ranks as one of Maine's biggest water quality successes.

Other Rivers and Streams

In addition to the dramatic improvement of the Kennebec River and Penobscot River, clean-up efforts since the early 1970's have resulted in the elimination of nuisance conditions in numerous other rivers and streams. Most rivers or streams which still have serious water quality problems like the Androscoggin are at least partially supporting their assigned classification, a vast improvement over 1972.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

- nature and extent of groundwater resource and associated contamination
- storage and disposal of toxic and hazardous wastes
- identification and treatment of municipal, industrial and individual wastewater discharge
- restoration of eutrophic lakes
- protection of drinking water supplies
- identification and control of nonpoint source pollution
- nature and extent of impacts associated with acid precipitation

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
X sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

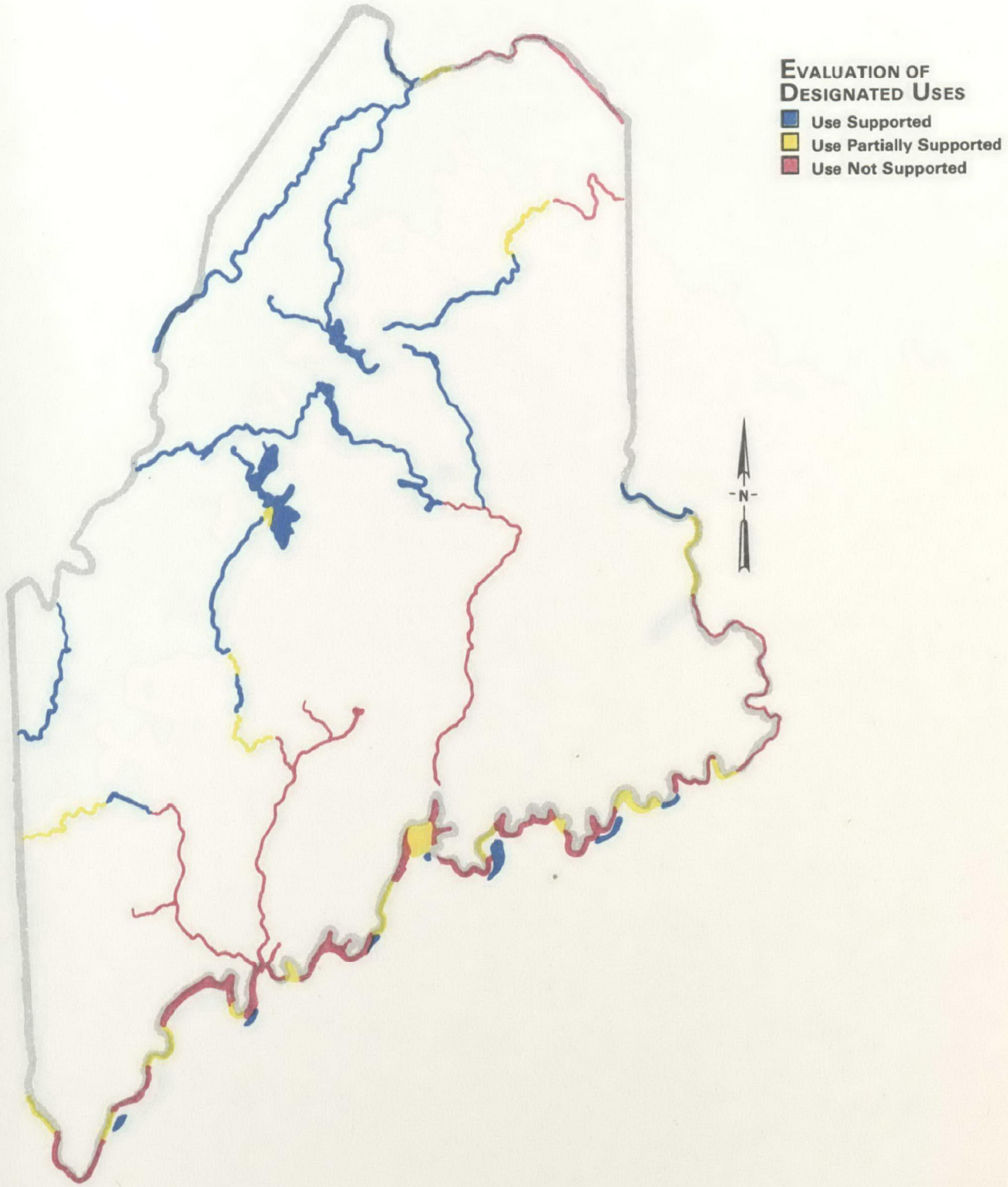
All concerns mentioned in Part A above continue to present water problems in the State of Maine. Great progress has been made in clearing up surface waters but much remains to be done. Both groundwater pollution and acid rain are less well understood and are the focus of efforts to better identify and control their water quality impacts. The search for alternative energy sources has thrust hydropower with its attendant water-use conflicts into the forefront of Maine water quality protection. Other concerns include development of better criteria to protect the health of humans and aquatic life as well as the continued effective operation of scores of aging wastewater treatment facilities.

AGENCY PREPARING REPORT: Maine Department of Environmental Protection
Bureau of Water Quality Control

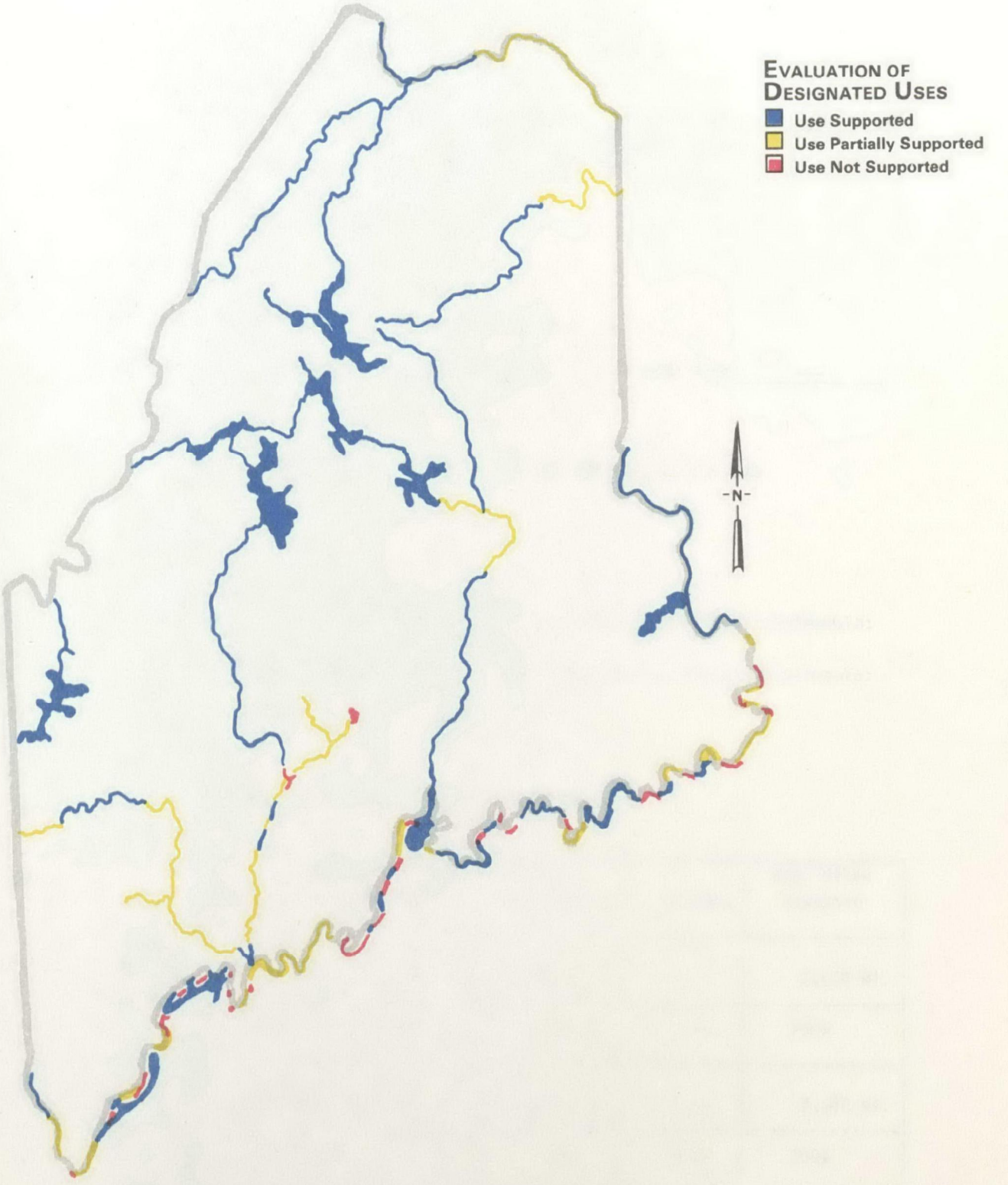
CONTACT PERSON & PHONE #: Frank Fiore 207-289-3901

DATE: October 12, 1983

MAINE
1972


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

MAINE
1982


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

State of Maryland*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,922,399 1980 4,216,975
State Surface Area 12,687 sq. miles
# of River Systems/Basins 19
# of River and Stream Miles 9,300 mi.; # of Border Miles* 370 mi.
# of Lakes and Ponds and Acreage 127 / 21,767 ac.
# of Marsh or Wetlands ac./sq.mi. 307,400 ac. or _____ sq. mi.
# of Coast Miles 32 mi.
# of Estuary sq. mi. 2,382 sq. mi.

*Border Rivers:

Name/Mileage Potomac/178 (VA) Name/Mileage ---

Name/Mileage Potomac and North Branch/192 (WVA) Name/Mileage ---

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 7,440
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 5,580*
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 2,566

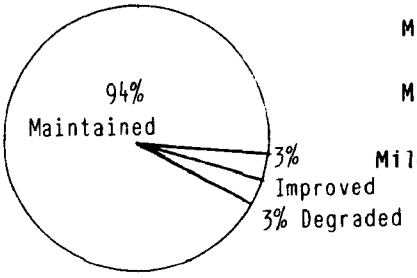
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	6,699 mi.	343	398	--	7,440 mi.
	90%	5%	5%	--	100%
1982	6,838 mi.	343	259	--	7,440 mi.
	92%	5%	3%	--	100%

* Includes shellfish harvesting waters (Class II) and trout waters (Classes III and IV) which have more stringent water quality and/or discharge standards.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	60	150
Miles Degraded:	181	11
Miles Maintained:	7,038	
Unknown:	--	

B. Lakes and Reservoirs

1. a. Acres Assessed: 20,696

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Acres Monitored: 20,120

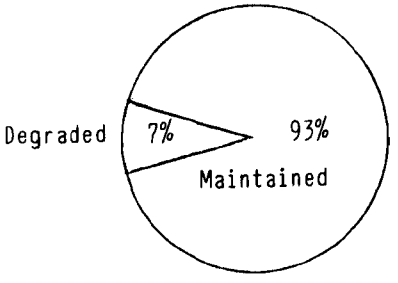
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	14,144 ac.	5,600	0	--	19,744* ac.
	65%	35%			100%
1982	13,596 ac.	7,100	0	--	20,696 ac.
	65%	35%			100%

*Bloomington Lake/Reservoir cause of difference in 1972 and 1982 total acres assessed.

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	1,500	0
Acres Maintained:	19,196	
Unknown:	--	

C. Estuaries and/or Oceans

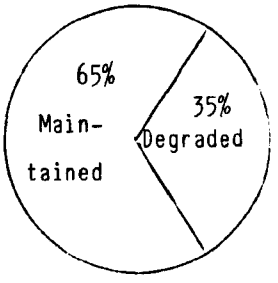
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	1,726	32
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	1,726	32
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	0
	d. Sq. Mi./Miles Monitored:	1,726	32

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	1,726 sq. mi. 32 100%	0 0 0	0 0 0	0 0 0	1,726 sq. mi. 32 100%
1982	1,126 32 62.5% 100	600 0 37.5% 0	0 0 0 0	0 0 0 0	1,726 sq. mi. 32 100%

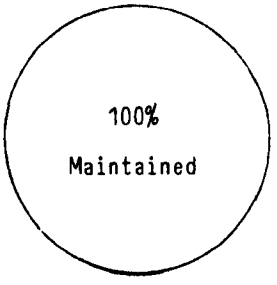
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	0	0
Sq.Mi.Degraded:	0	600
Sq.Mi.Maintained:	1,126	
Unknown:	0	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	0	0
Miles Degraded:	0	0
Miles Maintained:	32	
Unknown:	0	

D. Great Lakes (NOT APPLICABLE)

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

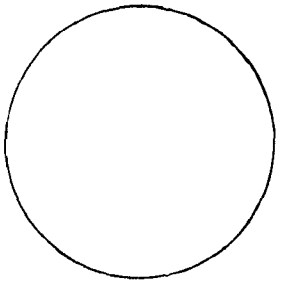
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

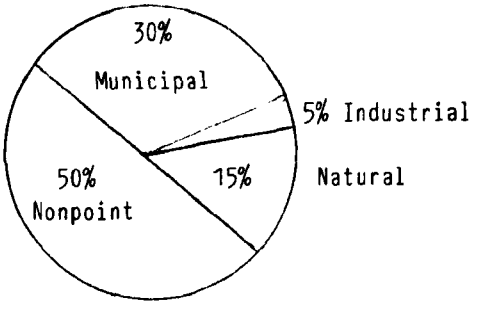


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

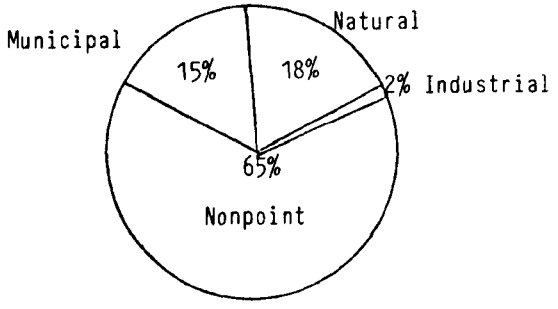
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

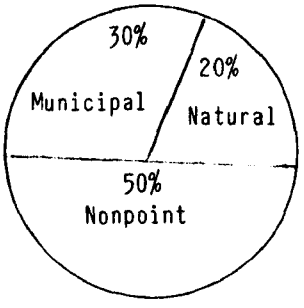
a. Streams and Rivers



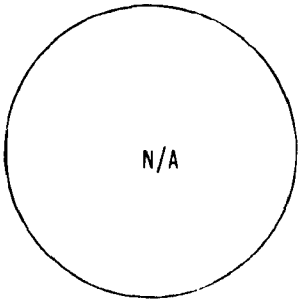
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						D.O., Nut.
Industrial				X	X	X			pH, Toxics
Non-Point	X		X				X		Nut., Turb.
Other (inc. natural)									

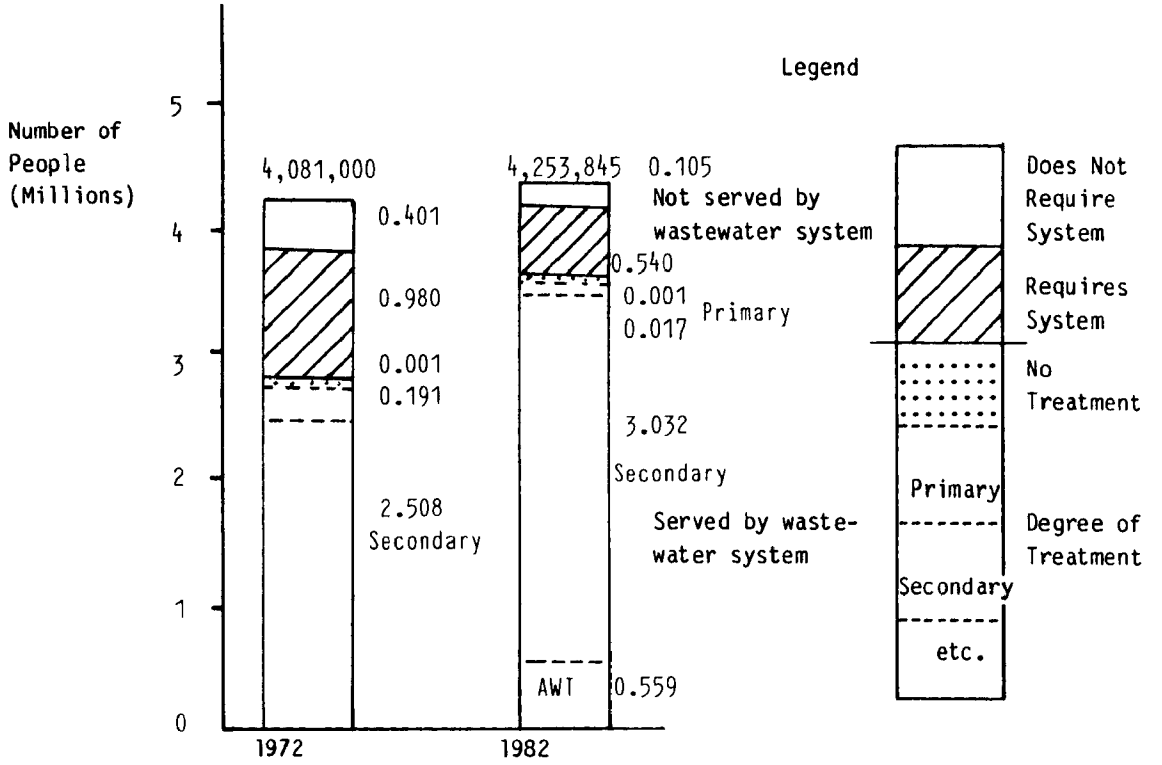
*Number of Stream/River Miles Affected by Toxics: 4 (Baltimore Harbor)
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 0
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

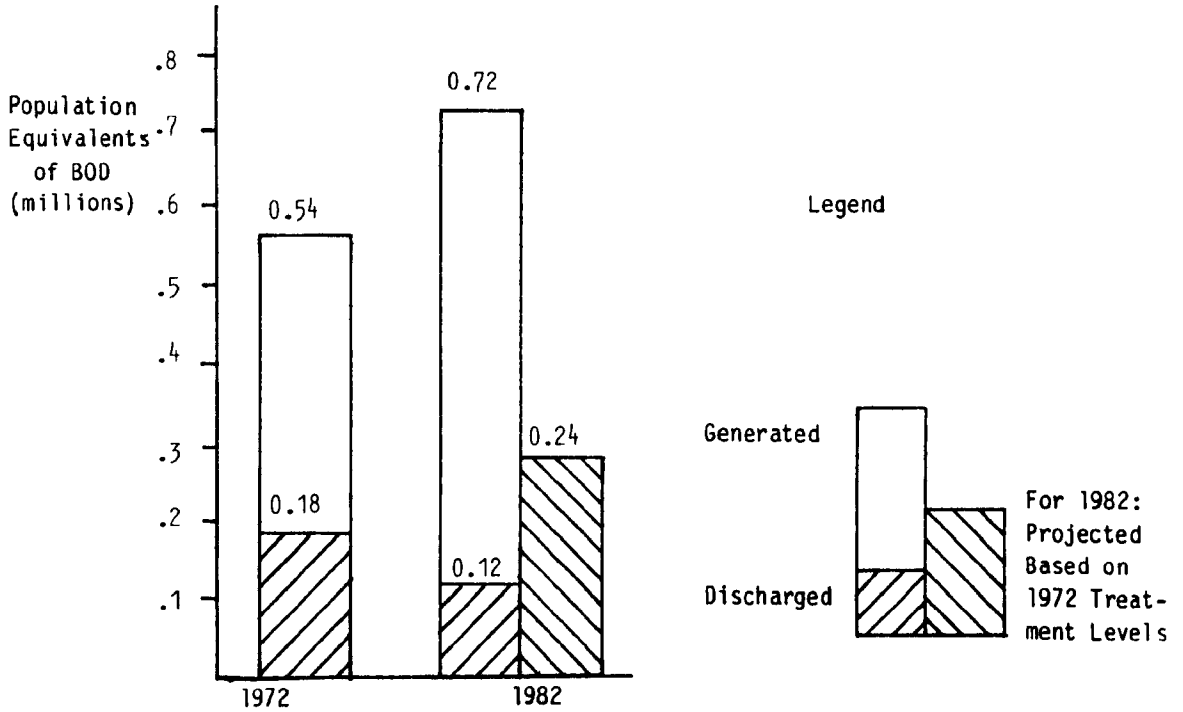
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

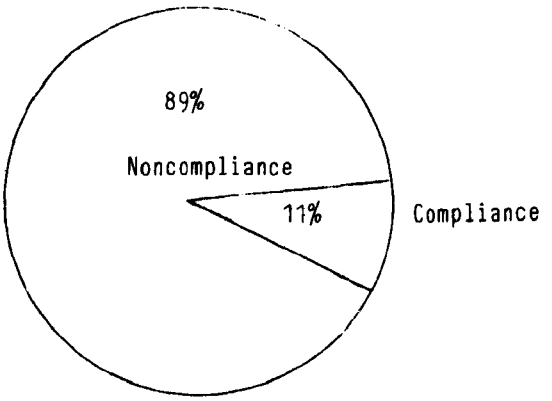
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	35	17	18	
Facilities Meeting 1982 Permit Requirements+	4	14	18	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	11%	82%	100%	350*
Percentage of Flow For Which Requirements Met+	2%	95%	100%	
Facilities Needing Upgrading	31	8	7	

*Includes: 157 POTW's and 193 Private

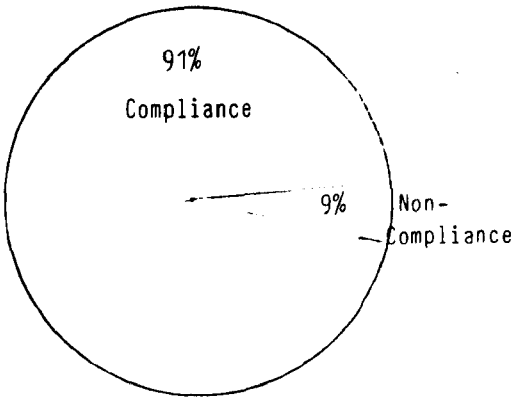
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

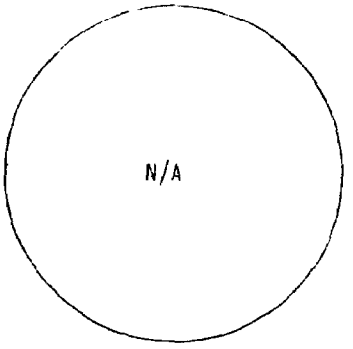
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	35	52	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	0	29	46	613
Percentage of Facilities for Which Requirements Being Met	0	83%	88.5%	
Percentage of Flow for Which Requirements Met+	0	13.5%	87%	

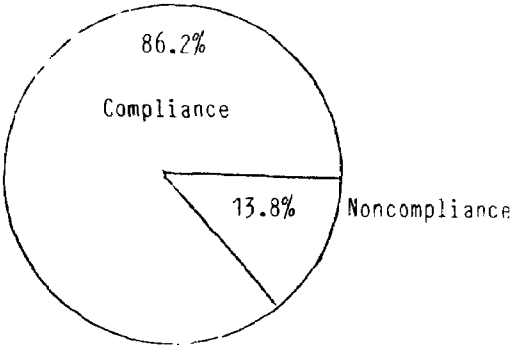
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Maryland has a number of nonpoint source problems facing it. Foremost is the stormwater runoff in the watersheds of its municipal drinking water reservoirs. Here both urban and agricultural runoff contribute nutrients causing excessive algal levels. In addition, excessive sediment runoff brings about reduction in reservoir volume. Of next concern is the agricultural runoff which has been cited as a significant contribution of nutrients and sediment to our many tidal waterways. Following this comes abandoned mine drainage which results in acidic, metal-laden waters in which little, if any, life can exist. Lastly, coastal groundwater aquifers have shown elevated levels of nitrates jeopardizing their continuing use as a drinking water supply.

The State is actively pursuing various procedures for controlling these nonpoint sources. Urban runoff problems and preventive alternatives have been undertaken in a number of areas. Part of the purpose of the Section 208 Water Quality Management Plans is to assure that these various programs are adequately coordinated. Erosion control laws covering runoff from construction sites are common, as are regulations dealing with individual disposal systems. Some success has started to show forth. Urban runoff is being attacked through application of detention basins, groundwater infiltration basins, street sweeping ,etc. Strengthening this program is recently enacted legislation that creates a new program in which counties and municipalities must adopt ordinances for stormwater management for the purpose of maintaining after development, as nearly as possible, predevelopment runoff characteristics. These ordinances must be in effect July 1, 1984. The State will provide technical assistance and monitor the work of the local governments.

Maryland, in conjucntion with the Department of Agriculture's Soil Conservation Service, has developed regulations or assistance programs to deal with soil erosion and runoff of pollutants from agricultural areas. Recent legislation establishes a cost sharing program for the establishment of best management practices to control nonpoint source agriculturally related pollution caused by sediment loss, animal wastes, and chemicals. Rules and regulations to administer the program have been adopted. The Department of Natural Resources, because it implements the State's sediment and erosion control program, will be consulted for the purpose of coordination. Soil Conservation Districts will be asked to provide technical services. The program will be paid for with funds provided by the State Water Quality Loan Act. The first grants should be made in mid-1983.

Programs for reclaiming abandoned mining areas and reducing or eliminating acid mine drainage are progressing. The problems of groundwater contamination have not been sufficiently evaluated to allow for any real progress at this time.

All of the control strategies being employed are only starting to address this area of nonpoint source pollution.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	M/W	I/L	S/L	M/L	S/L	N/A	I/L
Primary Pollutants	C; SS; Nut.	C; SS; Nut.	SS	pH; M.	SS	Nut; SS	N/A	---

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Municipal compliance program emphasizes voluntary correction and consent agreements in meeting program objectives. Where recalcitrance is encountered or there is a clear violation of law, corrective orders are issued.

The enforcement approach to Non-Municipal facilities is progressive use of enforcement tools starting from inspection reports through site complaints, complaint and orders, civil penalty assessments, and formal judicial actions.

Nonpoint source enforcement centers around erosion control laws covering runoff from construction and laws and regulations controlling individual disposal systems. These problems normally result in administrative actions. Agricultural non-point source runoff enforcement emphasizes the use of voluntary compliance. For further discussion see Section IV.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

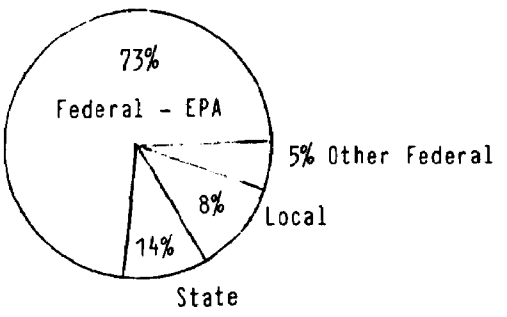
Total Number of Facilities:	15
Number of Pre-Administrative Actions:	7
Number of Administrative Actions:	3
Number of Judicial Actions:	5

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,431 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,039 Million
Other Federal:	$ 69
State:	$ 204
Local Match:	$ 119
Other Local:	$

C. Program Activities

Maryland's water quality management program is a comprehensive environmental management process which integrates numerous water pollution control activities. The overall State strategy is to integrate program responsibilities under the Clean Water Act with State programs so as to accomplish the goals and objectives of both while assuring the integrity of each. Emphasis is placed on maintaining a water quality management program which provides for a continuous planning process to include an ongoing assessment of program effectiveness.

Continuous Planning Process - A continuous planning process has evolved over the past decade which consists of: identification of problems, preliminary investigation, additional data-gathering, analysis of data and preparation of findings, identification of needed corrective measures, and implementation.

The identification of problems depends primarily on the 305(b) report, but also relies on the input from the State Water Quality Advisory Committee (a committee made up of individuals and organizations, equally balanced among four categories: private citizens, public interest groups, public officials and economic interests).

Other water quality planning activities include reviewing and approving/disapproving County Water and Sewer Plans for conformance with State laws and regulations. A related major function is the review of facility plans, priority lists, State construction permit and NPDES discharge permit applications and items submitted to the State Clearinghouse for consistency with the approved Comprehensive Water and Sewer Plans.

Water Quality Assessment - The assessment of water quality is a continuous effort which manifests itself in a variety of interrrelated processes. These monitoring and analyses processes include: core monitoring, shellfish monitoring, sanitary surveys, intensive surveys, special water quality studies, river system modeling, wasteload allocation inspections, NPDES discharge analysis, emergency response surveys and studies, compliance sampling, and evaluation inspections, operations and maintenance inspections and sampling, macroinvertebrate benthic monitoring, and phytoplankton monitoring.

Construction Grants Management - The objective of the Construction Grants Program is to assure that needed wastewater collection and treatment facilities are properly planned, designed and constructed in order to eliminate water quality and public health problems caused by inadequately treated discharges. Maryland has assumed delegation of nearly the entire Construction Grants Program from EPA, thereby eliminating prior duplication of effort and resulting in more timely processing of grant projects.

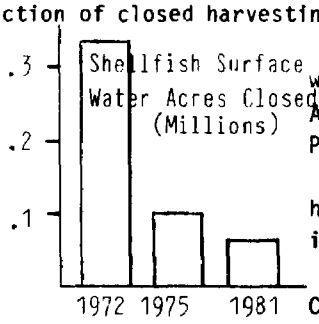
Enforcement - Maryland's water pollution control enforcement and compliance activities continue to be concentrated in three main program areas:

1. Operation and Maintenance Inspections - This activity functions as a voluntary/cooperative program whereby permittees are encouraged to correct problems under their own initiative.
2. NPDES Enforcement - NPDES enforcement activities initiate with the compliance monitoring program in that violators are identified and appropriate course of action outline. The normal administrative procedures followed are - a) written notification, b) administrative meetings, c) administrative orders. These orders specify corrective action which must be taken within a specified time period and provide penalties for failure to comply.
3. Operator Training - The Maryland Certification Program for Superintendents of Water, Wastewater and Industrial Wastewater Treatment Facilities was promulgated in 1967. In 1981, certification was altered to certify by treatment process rather than volume, to require operators as well as superintendents to be certified and to require training for certification renewal.

VI. SITE-SPECIFIC SUCCESSES

INCREASE AND STABILATION OF PERMITTING SHELLFISH HARVESTING WATERS - CHOPTANK RIVER

In general, although there continues to be numerous small shellfish closure areas through the tidal portion of the State, the general trend since 1972 has been a sharp reduction of closed harvesting water. This is shown in the following graph:



These successes are attributed to improvements in wastewater treatment facilities under the Clean Water Act, and improvements in Maryland's Shellfish Sanitation Program.

The Choptank River represents a specific example of how water pollution control programs have resulted in improved water quality and public use of water.

The primary sewage treatment plant servicing the City of Cambridge on the Choptank River was upgraded in the early 1970's. This renovation included upgrading the plant to secondary capacity using the activated sludge process along with an emergency holding pond for shellfish water protection, and improvements to all basic units including the disinfection facilities. These improvements were the principal cause of significant water quality improvement downstream of the plant. This improvement resulted in the permanent opening of 3,600 acres of prime oyster and soft shell clam waters in September of 1974. These waters are considered to possess some of the most valuable and productive shellfish grounds in the State. They have remained open for harvesting from 1974 to the present, and should continue to produce large quantities of wholesome shellfish for Maryland and interstate consumers.

TIDEWATER POTOMAC CLEANUP

In the early 1970's, the upper tidewater of the Potomac River - metropolitan Washington DC and the adjoining 50 miles of Maryland below Washington - was severely polluted. Floating algal mats, dead fish, and noxious odors were dramatic evidence of poor water quality. The main sources of the pollution of the "Nation's River" were nutrients, bacteria, and oxygen-demanding substances in treated sewage. Because of the overloaded conditions at the sewage treatment plants and dry-and wet-weather overflows raw sewage was being dumped into the Potomac.

Also in the early 1970's, a Potomac River Cleanup Program was implemented; the result of a cooperative and monetary union between the Environmental Protection Agency (EPA), Maryland, Virginia, and Washington, DC, as well as numerous local authorities. The construction grants program allowed $1 billion to be spent in the Washington area alone, mostly for the expansion and upgrading of sewage treatment facilities. For the Potomac, sufficient data was available over a long enough period of time to study the effects of the wastewater treatment improvements. A comparative analysis of an earlier period (1969-1970), prior to advanced sewage treatment, and a later period (1977-1979), reflected the effectiveness of the cleanup program.

The water quality of the tidewater Potomac improved dramatically during the 1970's - a decade during which significant wastewater control processes were implemented. The result was a reversal in the long-term declining trend in Potomac River water quality. The impacts of phosphorus removal, the expansion of the capacity of the treatment facilities, the elminiation of dry-weather overflows, and the reduction of the volume and concentration of wet-weather overflows all combined to "save the river."

Washington and Maryland area residents generally agree that the tidewater Potomac is less polluted than it was 10 years ago. The news media give periodic reports of the Potomac's beneficial impact on recreational activities such as boating and fishing. Largemouth bass are established in and below the city and are now routinely caught by recreational fishermen. In fact, several sport fishing guides have successful businessess in the metropolitan area, due to the cleanup program. Existing water quality conditions are also reflected in other biological communities that the tidewater currently supports. Trends in algal and bacterial populations also have shown significant improvements, and the tidewater Potomac has become a cleaner, more ecologically balanced system.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

1. Wetlands - The State of Maryland has had a tidal wetlands regulatory program since July 1970. Prior to passage of the wetlands law about 1,000 acres of wetlands were being destroyed per year. For the 25-year period 1942-1967, wetland losses in Maryland exceeded 23,000 acres. After the wetlands law a yearly average of 48 acres of open water wetland and 12 acres of vegetated wetland has been allowed to be filled through the permitting process. In addition, a yearly average of 118 acres of open water wetland and 8 acres of vegetated wetlands has been allowed to be dredged.

2. Onsite-improvement in testing procedures - Significant improvements have been made regarding the testing and evaluation of on-site sewage disposal systems. These improvements have affected the site selection, design and ultimate operation of such systems.

Part B. Major Remaining Problems:

X	- Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
X	- Groundwater resource quality protection or supply assurance.
X	- Identification and control of toxic pollutants from industrial and non-point sources.
X	- Municipal wastewater plant operation, maintenance, and rehabilitation.
X	- Pollution arising from abandoned industrial and/or mining facilities.

1. The Chesapeake Bay represents the major problem in the State. The decline of submerged aquatic vegetation and anadromous fish species during the last decade has seriously concerned Bay managers. The potential impact of toxic substances throughout the Bay is also an area of concern. U.S. EPA's Bay Program will be continued in an attempt to further define and address these questions.

2. Non-point source pollution has emerged as an increasingly difficult and important problem. Non-point source runoff from urban, suburban, and agricultural areas continue to impact water quality throughout the State.

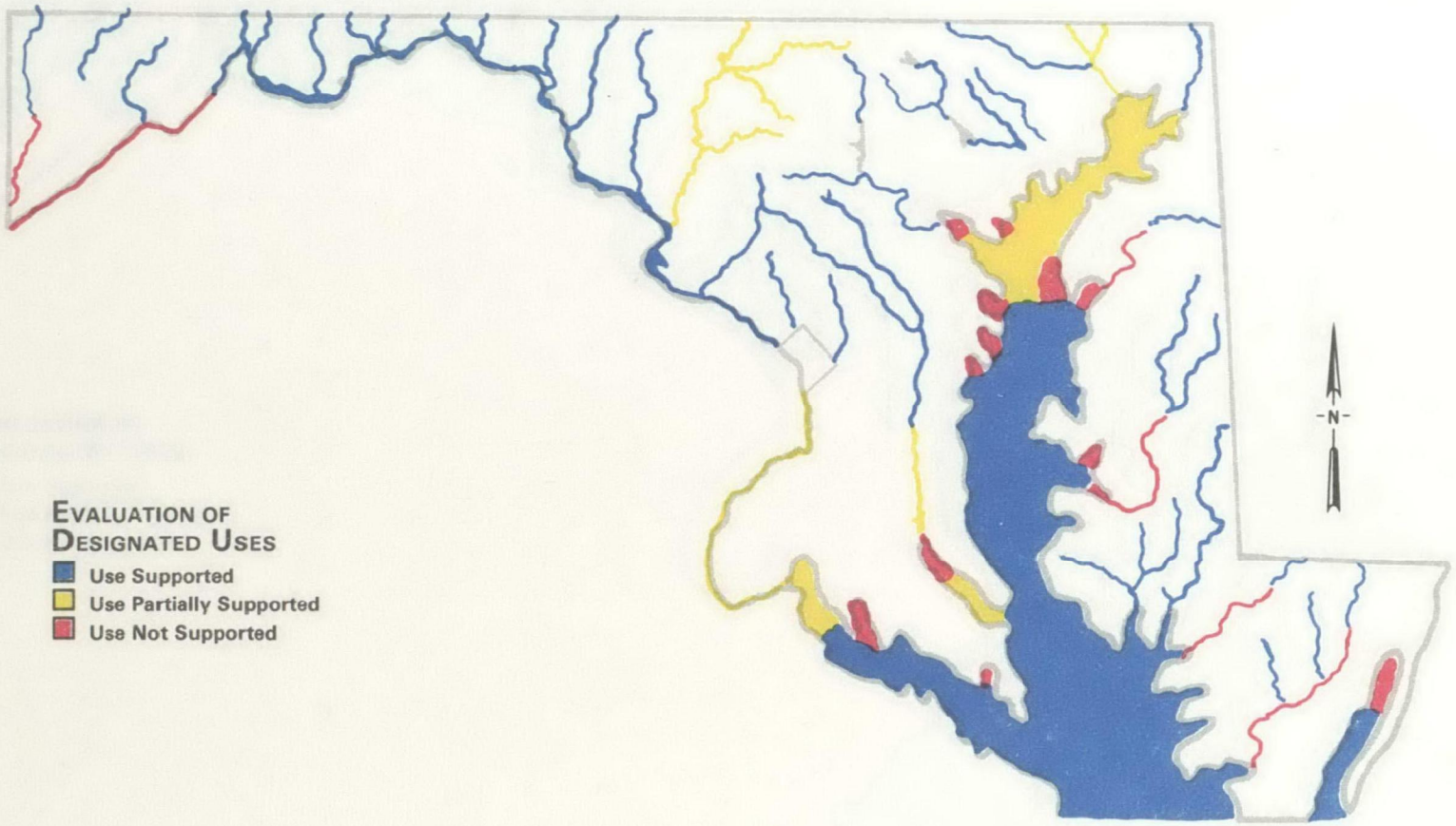
3. Nutrient problems have continued in the large reservoirs serving the Baltimore metropolitan area. This overenrichment is generally attributed to nonpoint source runoff. This problem has at times resulted in a use impairment. Management techniques must be developed to cope with this problem.

AGENCY PREPARING REPORT: Maryland Dept. of Health & Mental Hygiene

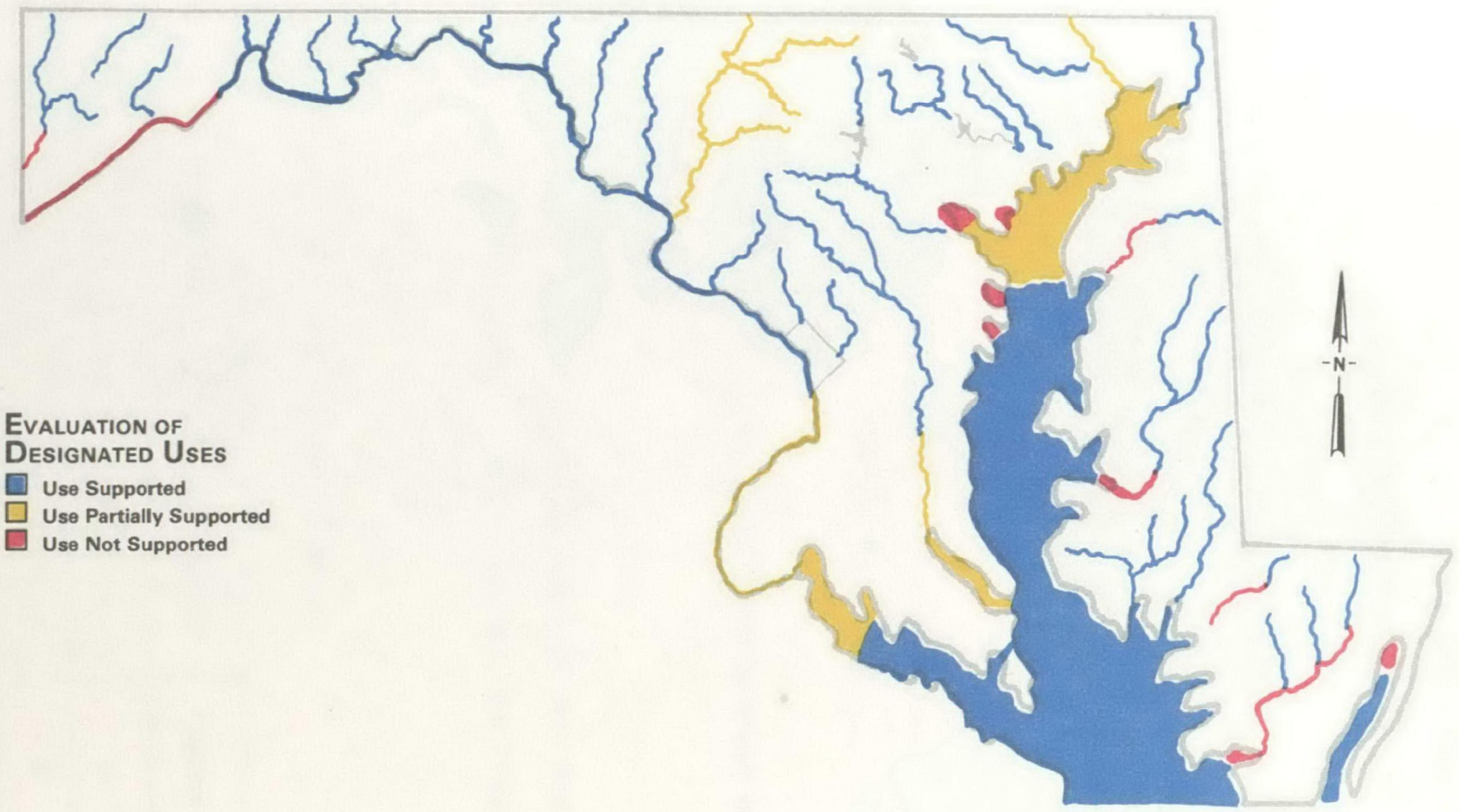
Office of Environmental Programs

CONTACT PERSON & PHONE #: Mr. Donald L. Elmore (301) 383-4244

DATE: September 1, 1983



MARYLAND
1972



MARYLAND
1982

State of Massachusetts*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 5,689,107 1980 5,737,037
State Surface Area 8,257 sq. miles
# of River Systems/Basins 27
# of River and Stream Miles 10,704 mi.; # of Border Miles* 0 mi.
# of Lakes and Ponds and Acreage 2,859 / 150,341 ac.
# of Marsh or Wetlands ac./sq.mi. 362,165 ac. or 566 sq. mi.
# of Coast Miles 1,519 mi.
# of Estuary sq. mi. _____ sq. mi.

*Border Rivers:

Name/Mileage N/A Name/Mileage N/A

Name/Mileage N/A Name/Mileage N/A

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

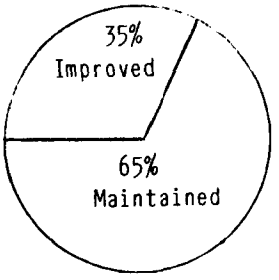
1. a. Miles Assessed: 1,611
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 101
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 27
   d. Miles Monitored: 1,611

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	444 mi.	444	723	0	1,611 mi.
	27.6%	27.6%	44.8%	0	100%
1982	780 mi.	673	158	0	1,611 mi.
	48.4%	41.8%	9.8%	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	0	565
Miles Degraded:	0	0
Miles Maintained:	1,046	
Unknown:	0	

B. Lakes and Reservoirs

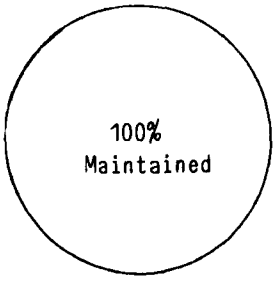
1. a. Acres Assessed: 71,487 (336 lakes and two water supply reservoirs)
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 42,352 (336 lakes)

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	44,013 ac.	24,345	3,129	--	71,487 ac.
	61.6	34.1%	4.3%	--	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:	71,487	
Unknown:		

C. Estuaries and/or Oceans (Information reported for oceans only)

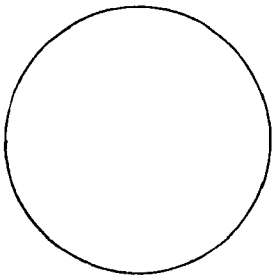
	Estuaries	Oceans
1. a. Square Miles/Miles Assessed:	1,251 sq. mi.	1,519 mi.
b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	469.4 sq. mi.	--
c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	0
d. Sq. Mi./Miles Monitored:	1,251 sq. mi.	1,519 mi.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	807,226 ac.	4,475	32,658		844,359 ac.
	95.6%	0.5 %	3.9 %		100%
1982	757,243 ac.	3,333	39,812		800,388 ac.
	94.6%	0.4 %	5.0 %		100%

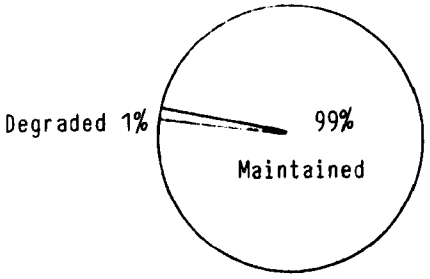
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:		
Sq.Mi.Degraded:		
Sq.Mi.Maintained:		
Unknown:		

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	0	0
Miles Degraded:	0	7,154 (acres)
Miles Maintained:	760,576* (acres)	
Unknown:	--	

*Maintenance of Non-Support Areas not included.

D. Great Lakes

1. a. Miles Assessed: N/A

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: N/A

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: N/A

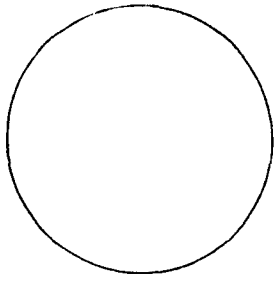
   d. Miles Monitored: N/A

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

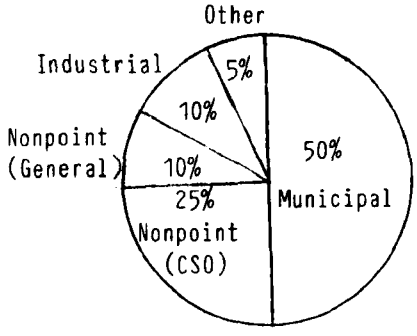


	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

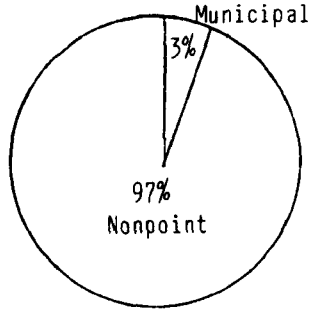
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

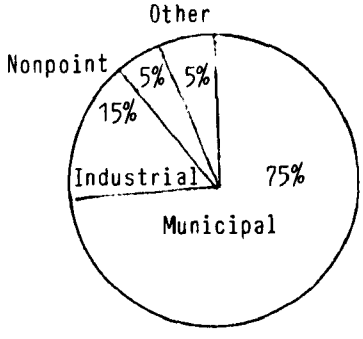
a. Streams and Rivers



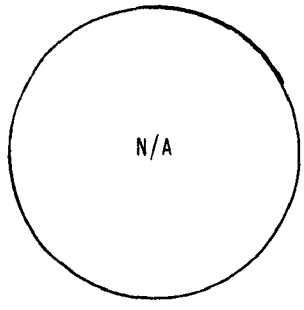
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			Coli./Toxic
Industrial		X			X	X			Toxic/D.O.
Non-Point	X	X	X						Coli./Nut.
Other (inc. natural)									

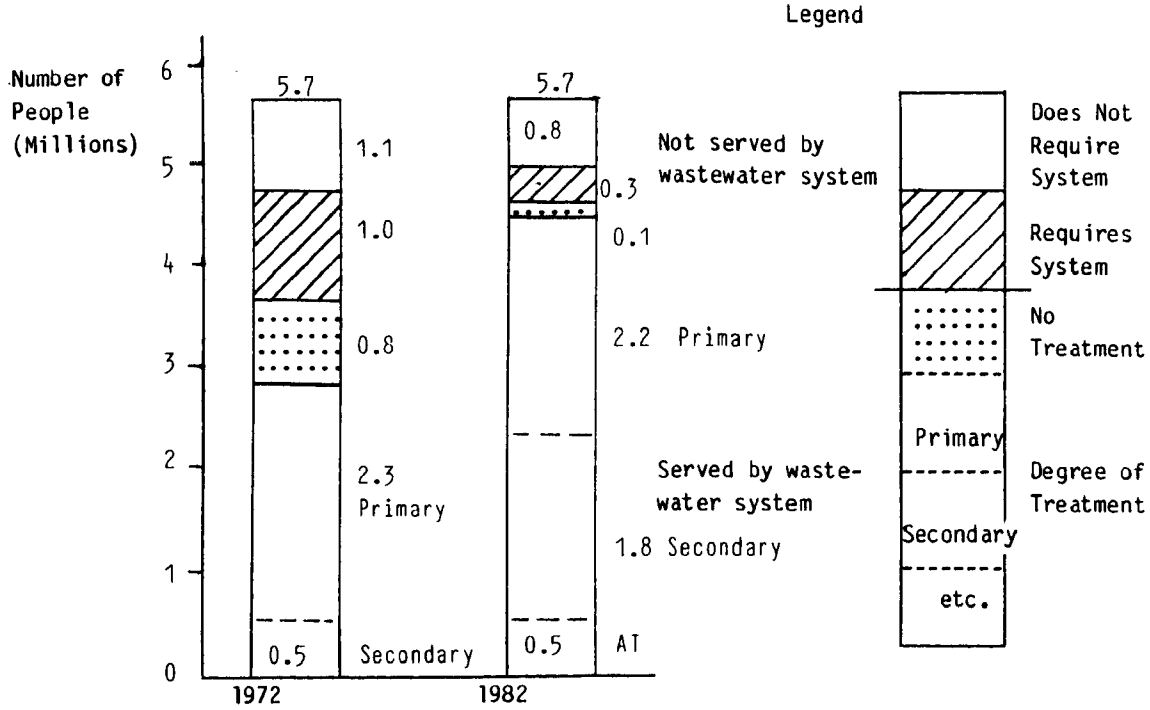
*Number of Stream/River Miles Affected by Toxics: 113
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 50
(Numbers provided for known miles affected by Toxics)

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

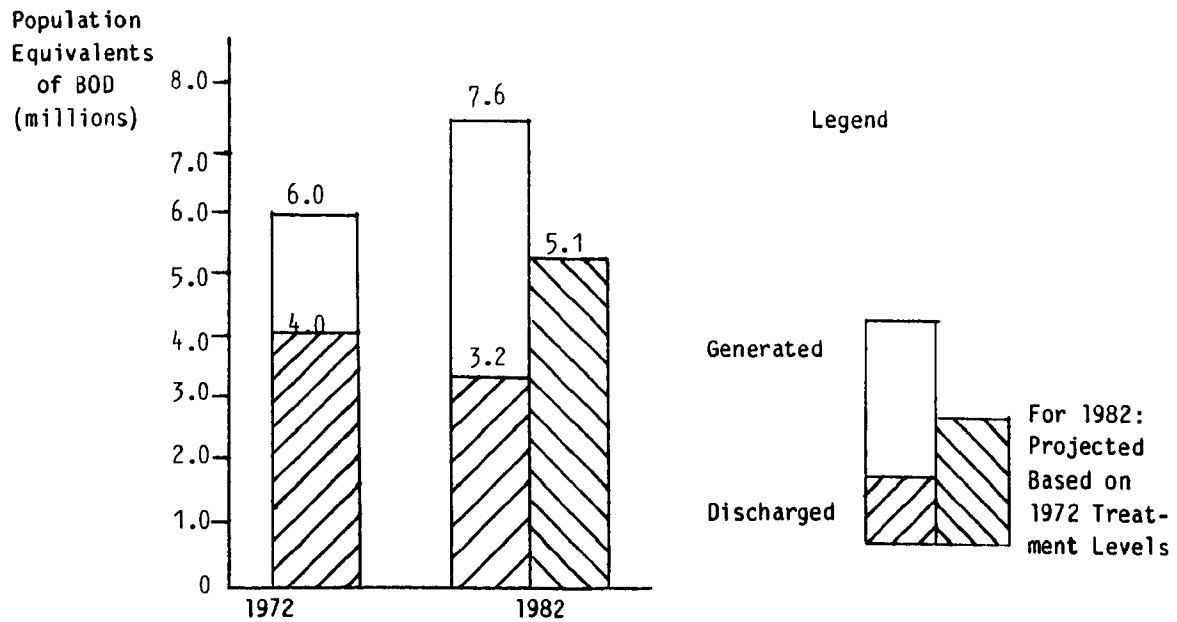
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

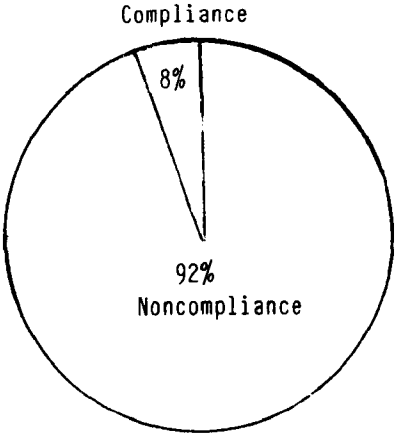
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	48	19	56	
Facilities Meeting 1982 Permit Requirements+	4	3	42	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	8	16	75	
Percentage of Flow For Which Requirements Met+	0.7	0.8	75	
Facilities Needing Upgrading	44	16	14	122

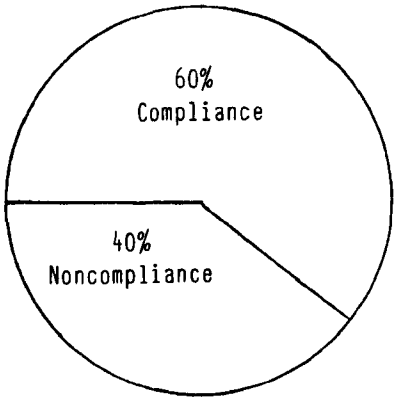
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

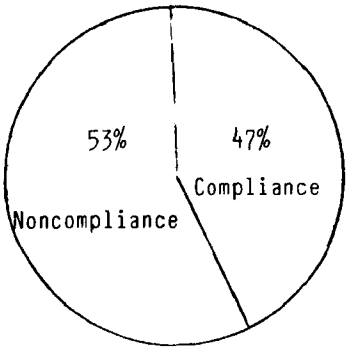
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	193	0	95	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	77	0	82	
Percentage of Facilities for Which Requirements Being Met	47	0	86	
Percentage of Flow for Which Requirements Met+	96*	0	99*	770

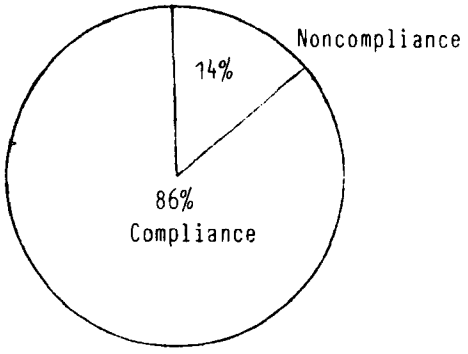
+Includes "No-Discharge" Facilities *Includes power plants

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

With the control of the vast majority of point source discharges over the past decade, the evaluation of the effect of non-point sources (NPS) has become a reasonable goal. The major components of NPS which have water quality impacts are urban runoff, nutrient loadings from agricultural and dairy lands, and groundwater contamination. The problem has been addressed from three major areas: 208 programs presented a general overview of NPS on a state-wide basis and made general recommendations such as institution of street sweeping programs to control loadings from urban runoff and implementation of best management practices (BMP's) for control of agricultural and dairy land runoff. The U.S. Soil Conservation Service has undertaken site specific evaluations of nutrient loadings to lakes and coliform bacteria loadngs from dairy land runoff. The Division of Water Pollution Control has evaluated through water quality surveys the effect of stormwater runoff upon the nutrient and coliform bacteria loadings to several streams in Massachusetts. The findings have been incorporated into the decision process of establishing point source effluent limits and, in some cases, the NPS have been more significant than point sources.

Most implementation of NPS control is conducted on a local level such as street sweeping, road salt containment and fertilizer application control. Concern is mounting over groundwater contamination from NPS; some communities have initiated watershed management programs to control NPS impacts.

Lakes and ponds are more severely impacted by NPS than rivers in Massachusetts. Direct point discharges to lakes are nearly non-existent; thus, watershed management plans to control NPS are an integral part of lake restoration projects. Studies in Massachusetts have demonstrated that BMP's can be effective in reducing NPS.

The ubiquitous nature of NPS makes its impact serious and its control difficult. The future programs for control will consist of protection of existing waterbodies and the implementation of localized BMP's.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	M/L	I/L	N/A	I/L	M/W	M/L	M/W
Primary Pollutants	C, SS OxDe,Nut	Nut. C	Nut.	--	S.S.,T	OxDe, Algae	Chlorides	M; C, OxDe

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The state determines appropriate enforcement action for each violation on a case-by-case basis. In general, however, the agency will use the lowest level in the hierarchy of enforcement actions that will result in compliance (unless violations are the result of willful misconduct or blatant disregard of laws or regulations, or are of a nature and severity that demand immediate court action). While this approach provides for efficient use of agency resources and encourages cooperative action to resolve problems, it requires careful tracking of pre-administrative and administrative actions, so that, where there is undue delay or absence of good faith efforts, the matter will be quickly advanced to the next level of enforcement. Referral to the Attorney General for initiation of court action, including the seeking of fines, may occur at any state of an enforcement action, depending on the factors noted above.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

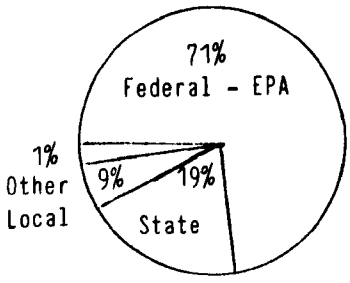
Total Number of Facilities:	24
Number of Pre-Administrative Actions:	12
Number of Administrative Actions:	5
Number of Judicial Actions:	7

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,488.7 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,060 Million
Other Federal:	$ 0
State:	$ 281
Local Match:	$ 140
Other Local:	$ 7.7

C. Program Activities

Administrative - Under the Massachusetts Clean Waters Act (MGL, Chapter 21, Section 26, as amended), the state legislature established the Division of Water Pollution Control, headed by a Director who would be assisted by an administrative support staff necessary to carry out the various designated activities and programs of the Division. Today, the Division administers three major programs: construction grants, the regulatory branch, and the technical services branch which coordinate the Division's efforts to obtain fishable/swimmable water in the Commonwealth.

Quality control management tools, such as five-year strategy planning, annual program planning, and quarterly reporting, are a function of the administrative staff and will help to facilitate and guide in new/expanded endeavors. These endeavors will include movement toward delegation of NPDES responsibility to the state, groundwater management, toxics control, expanded/improved treatment plant operation and maintenance/technical assistance efforts, expanded operator training and capability, new lakes restoration/preservation program, and coastal water quality program.

Municipal Facilities Branch - The construction grants program will remain a cornerstone of the pollution control effort by delegating funds to municipalities for initial planning, design and construction of new wastewater treatment facilities or the upgrading of old facilities which are not meeting their NPDES permits. Although there will not be as many new treatment plants under construction after FY84, there will be a shift toward resolving difficult economic and technical issues, many of which will involve resource intensive environmental impact analysis. These include non-point source controls through construction measures, e.g., sewering around lakes to control nutrients; a community's ability to support an expensive treatment facility; abiding by the Ocean Sanctuary Act's preclusion of discharge to the ocean, etc. The Collection Systems Construction Grants program will continue to provide funding assistance of $12 million annually to municipalities building sewers to serve new or expanded industrial development and other areas not eligible or likely to be funded under the federal program. The state bond legislation increased grant participation in this program from 40%, or $1 million to 50%, or $2 million and extended this program another five years thru FY89. If federal funding levels should diminish over the next several years, this program will take on added significance in providing funding for municipalities.

Regulatory Branch - This branch of the Division is responsible for delegating the NPDES program which includes processing applications, issuing NPDES permits, and operation and maintenance inspections as well as compliance monitoring of the numerous municipal and industrial treatment facilities in the Commonwealth. In addition, a newly formed groundwater management program will establish groundwater quality standards and issue groundwater discharge permits on a case-by-case basis.

Technical Services Branch - This branch has four main programs: 1) engineering, which is responsibile for water quality sampling and analyses, as well as water quality modeling and basin planning; 2) limnology, which administers the clean lakes grants (Chapter 628) and the nuisance aquatic weed control program (Chapter 722); 3) biological section, which places emphasis on research and demonstration, water quality standards, and biomonitoring; 4) compliance monitoring, which works closely with the regional offices of the regulatory branch to evaluate municipal and industrial discharges throughout the state.

VI. SITE-SPECIFIC SUCCESSES

Westfield River

For more than 25 years the Westfield River suffered the indignity of putrefaction from industry and municipalities. Various industries discharged suspended solids, organic wastes, process dyes, various metals and cyanides into the main stem. In addition, the river received untreated municipal wastes discharged directly into the main stem, and untreated wastes discharged from combined sewer overflows. By 1972, the pollution loading placed on the Westfield River's main stem in terms of biochemical oxygen demand (BOD) was 12,000 pounds per day, or the equivalent untreated sewage load produced in one day by a city with a population of 78,000. Rafts of paper mill sludge floated downstream, degrading the shoreline and causing nuisance odors. This gross pollution killed fish and fecal coliform bacteria posed a serious health hazard. Fecal coliform bacteria counts recorded by the Massachusetts Division of Water Pollution Control at the city of Westfield reached 430,000 organisms per 100 milliliters.

Through the efforts of authorities in the federal government and the Commonwealth of Massachusetts, the city of Westfield received $2.3 million to construct a conventional activated sludge secondary treatment plant. West Springfield also received a $5 million grant from federal regulatory agencies to upgrade its sewer system. The EPA awarded the city of Springfield $39 million to upgrade its primary treatment plant to secondary status and to construct a sewer interceptor system. Agawam was provided a total of $2 million to build interceptor sewer systems and finally, in mid-1977, the EPA awarded the town of Huntington $970,000 to construct an activated sludge secondary treatment plant with extended aeration. In 1974, the Massachusetts DWPC issued the first discharge permits under the NPDES permit program to nine major dischargers, and dischargers along the Westfield River. Industry and government regulatory officials worked together to construct in-house treatment facilities at three of the four paper mills along the main stem of the river. Another mill constructed neutralization facilities to remove dye wastes and a radiator plant installed phosphorus removal equipment.

Monitoring studies by the DWPC along the Westfield River main stem during the late 1970's showed that water quality had improved markedly over a few years. By 1978, the overall BOD loading to these waters had dropped from 12,000 pounds per day recorded in 1972 to 300 pounds per day. Moreover, in 1978 at Westfield, studies indicated a fecal coliform bacteria count of only 160 organisms per 100 ml. Sportfish returned to these waters, and anglers hauled in sizeable catches of smallmouth bass and rainbow and brown trout. Today, the entire Westfield River serves as a valuable recreational area for canoers and kayak enthusiasts. The entire reach of the swiftly flowing river fits the swimming and fishing classification and hikers, swimmers, and other outdoorsmen flock to the scenic Westfield River.

Nutting Lake

The Nutting Lake Restoration Program involved dredging of the lake bottom and harvesting and raking of weed beds. Initial monitoring results of Nutting Lake, located in Billerica, indicate an increased water depth from 6 to 9-10 feet and minimal regrowth of weeds. The local community has been receptive to the clean-up efforts and an expansive public access area has been built. Residents anticipate once again being able to swim in Nutting Lake in the near future. The initial results show that the lake is one of the success stories of the Lakes Restoration Program in the Commonwealth of Massachusetts.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

- Abatement of water pollution resulting from oil and hazardous materials spills.
- Proper operation and maintenance of the large number of municipal facilities built.
- Attainment of water quality standards in the state's receiving waters.
- Proper containment and elimination of abandoned hazardous waste sites.
- Eutrophication of lakes and ponds.

Part B. Major Remaining Problems:

X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

X - Groundwater resource quality protection or supply assurance.

X - Identification and control of toxic pollutants from industrial and non-point sources.

X - Municipal wastewater plant operation, maintenance, and rehabilitation.

X - Pollution arising from abandoned industrial and/or mining facilities.

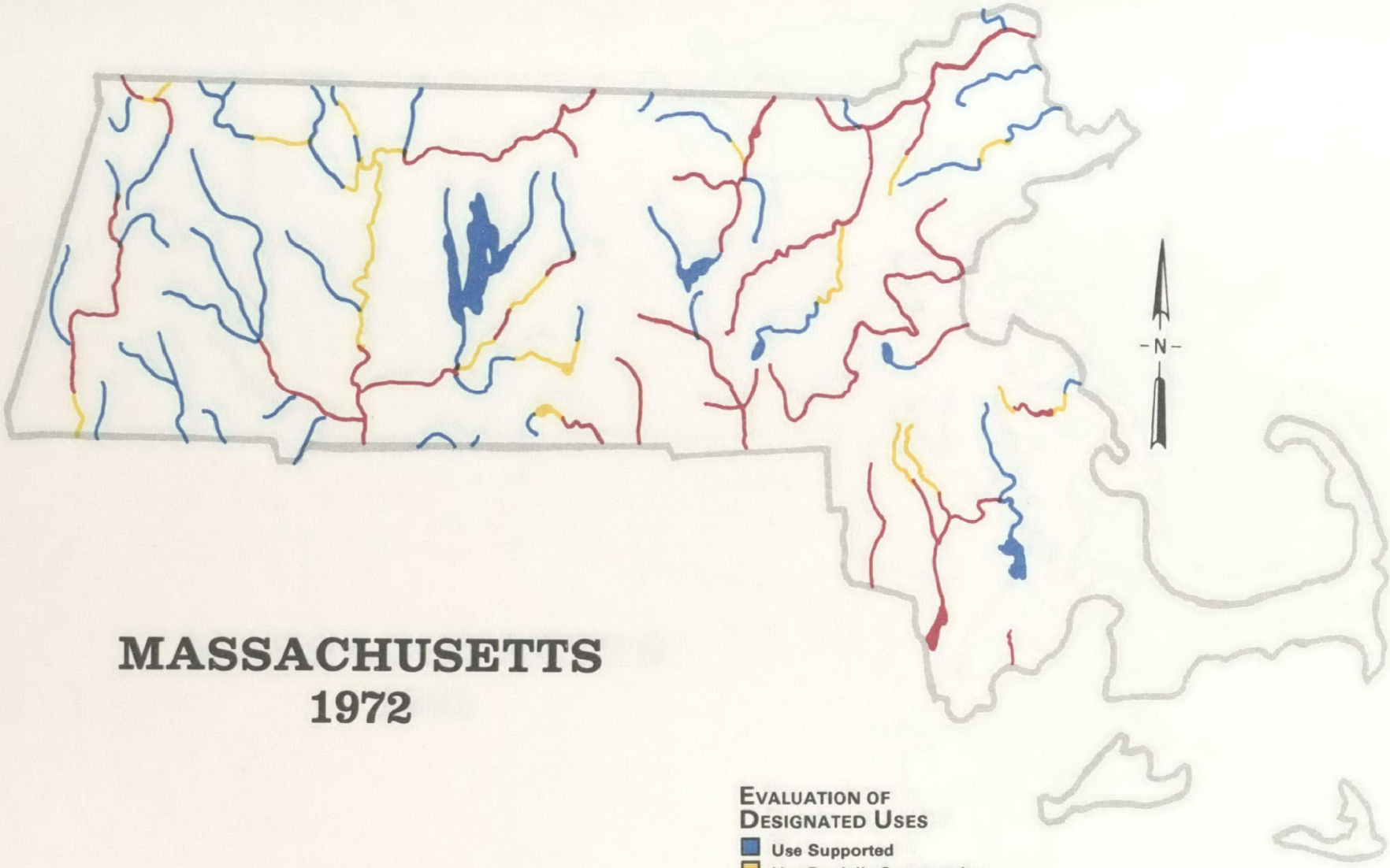
- Source of funding for needed abatement projects is unclear due to the projected decrease in federal funds.
- Chronic toxicity and bioaccumulation are difficult to evaluate on a wide-scale basis.
- Rehabilitation of the infrastructure of the municipal facilities.

AGENCY PREPARING REPORT: Massachusetts Division of Water Pollution Control

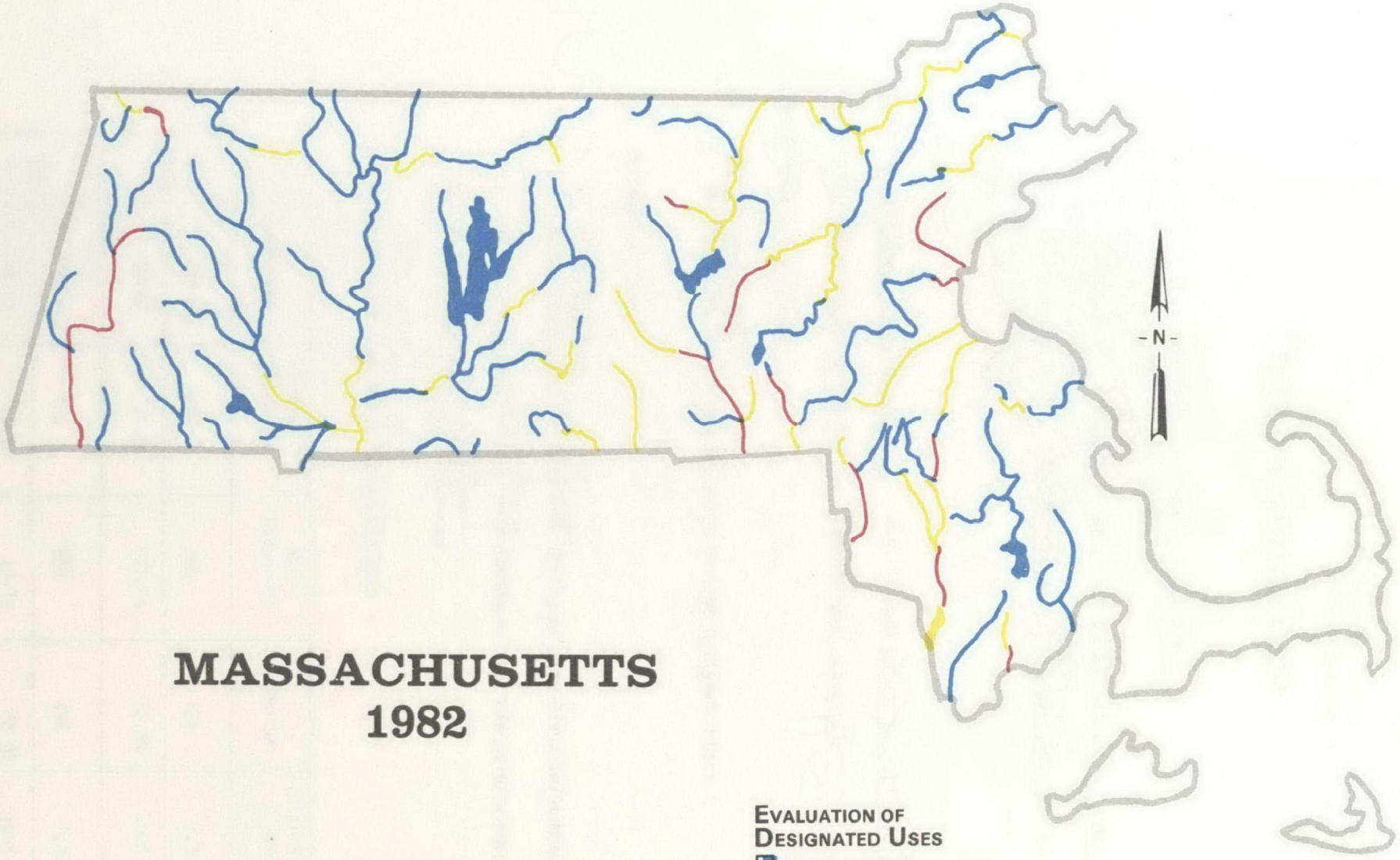
Westview Bldg., Lyman School, Westborough, MA 01581

CONTACT PERSON & PHONE #: Paul M. Hogan (617) 366-9181

DATE: August 18, 1983



MASSACHUSETTS
1972



MASSACHUSETTS
1982

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Michigan*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 8,875,083 1980 9,262,078
State Surface Area 96,791 sq. miles
# of River Systems/Basins 67
# of River and Stream Miles 46,350 mi.; # of Border Miles* 180 mi.
# of Lakes and Ponds and Acreage 656 / 491,405 ac.
# of Marsh or Wetlands ac./sq.mi. 3-5,000,000 ac. or 4,700-7,800 sq. mi.
# of Coast Miles 3,251 mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Wisconsin/Montreal/48 Name/Mileage Canada St. Clair/40

Name/Mileage Menominee,Brule/188,414 Name/Mileage Detroit/32

Name/Mileage St. Marys/70

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

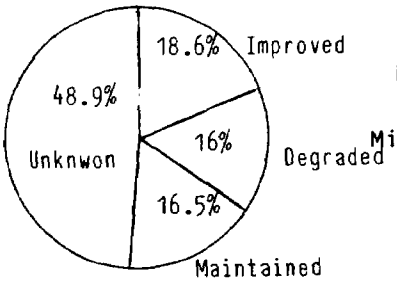
1. a. Miles Assessed: 1,309
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 919
   d. Miles Monitored: 1,309

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	535 mi.	324	285	164	1,309 mi.
	40.9%	24.8%	21.8%	12.5%	100%
1982	348 mi.	213	250	498	1,309 mi.
	26.6%	16.3%	19.1%	38.0%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	109	135
Miles Degraded:	15	195
Miles Maintained:	215	
Unknown:	640	

B. Lakes and Reservoirs

1. a. Acres Assessed: 648,499

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 23,979

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

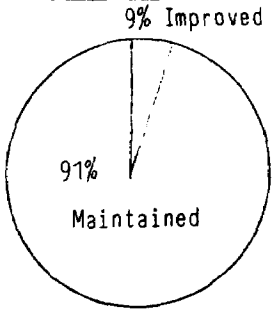
d. Acres Monitored: 157,094

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	75,000 ac.	16,000	9,000	--	100,000 ac.
	75%	16%	9%	--	100%
1982	542,203 ac.	106,296	0	--	648,499 ac.
	84%	16%	0	--	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	9,000	100%
Acres Degraded:	0	0
Acres Maintained:	639,499	
Unknown:		

C. Estuaries and/or Oceans

Estuaries Oceans

1. a. Square Miles/Miles Assessed: _____/_____

b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable: _____/_____

c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____/_____

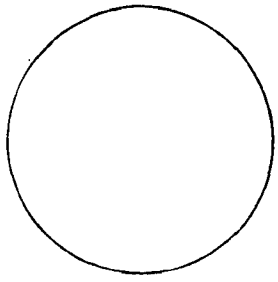
d. Sq. Mi./Miles Monitored: _____/_____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%				100%
1982					
	%				100%

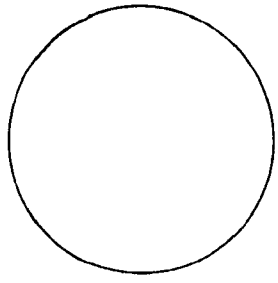
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

D. Great Lakes

1. a. Miles Assessed: See Appendix C *Documentation available from State or ASIWPCA

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable:
   12 public water supply intake sites

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable:
   0

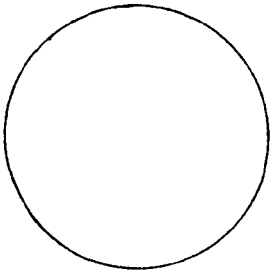
   d. Miles Monitored: See Appendix C *Same as above

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

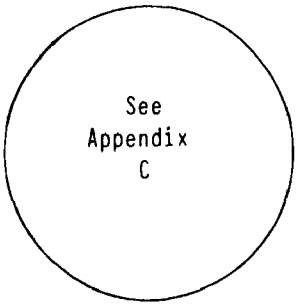


	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

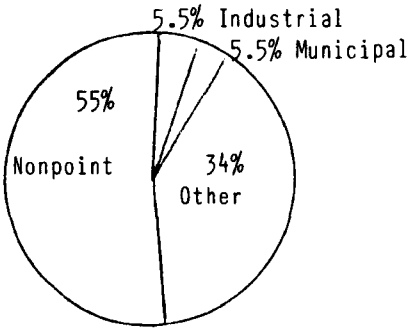
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

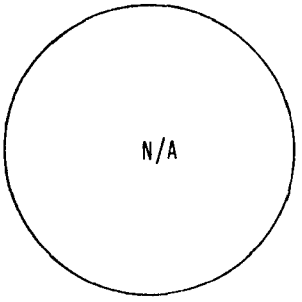
a. Streams and Rivers



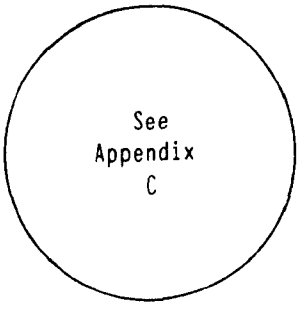
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X			X			DO, Nut.
Industrial		X		X	X	X			DO, Toxics
Non-Point			X				X	Pest.	Nut.,Turb.
Other (inc. natural)	X	X	X						DO, Nut.

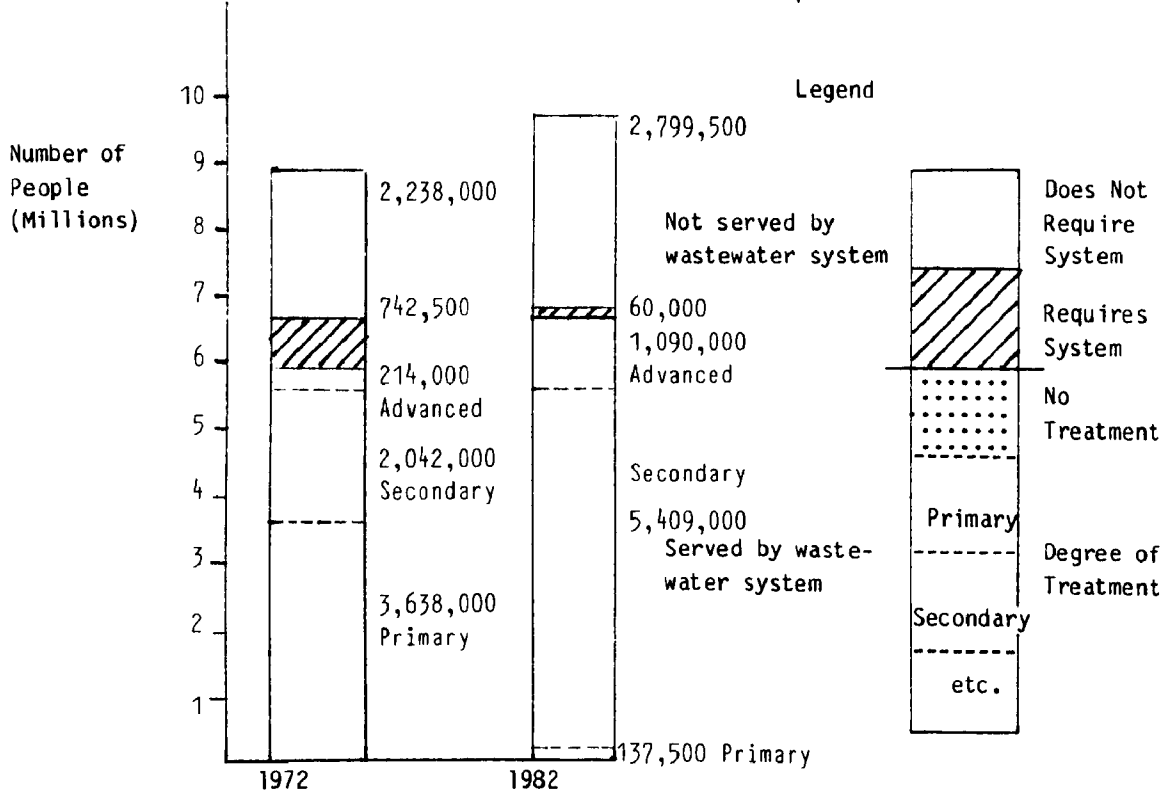
*Number of Stream/River Miles Affected by Toxics:	260 miles
*Number of Lake/Reservoir Acres Affected by Toxics:	No Major Lakes
*Number of Estuary Square Miles Affected by Toxics:	N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	3,231 miles
[Lake Michigan, Lake Superior Saginaw Bay,]	
[Lake St. Clair, Lake Erie]	

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

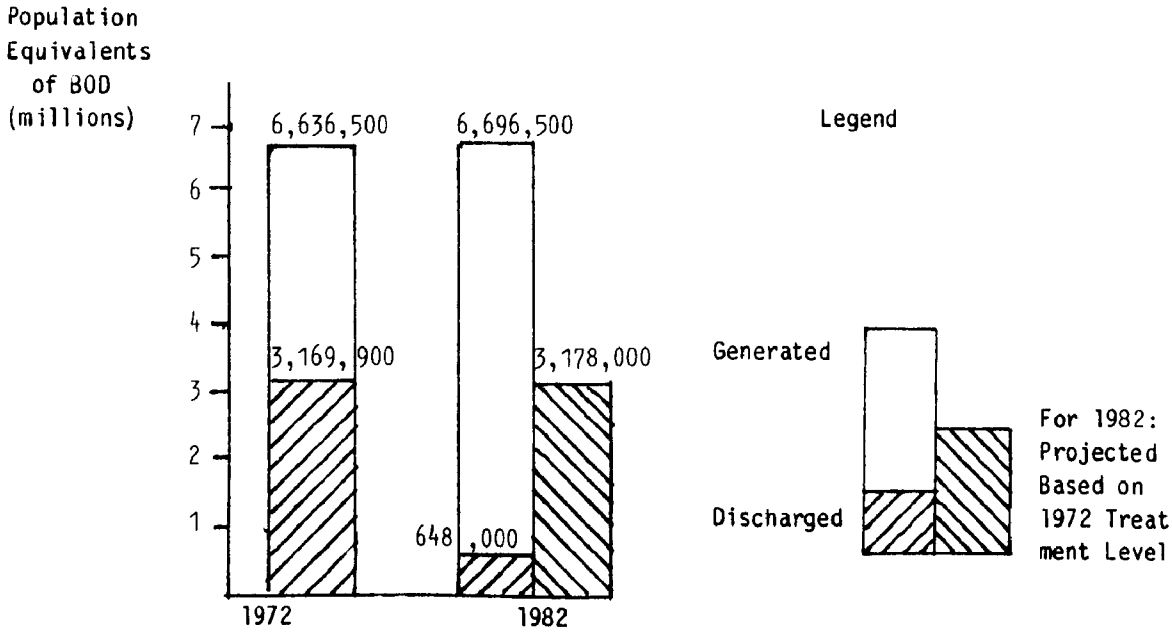
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

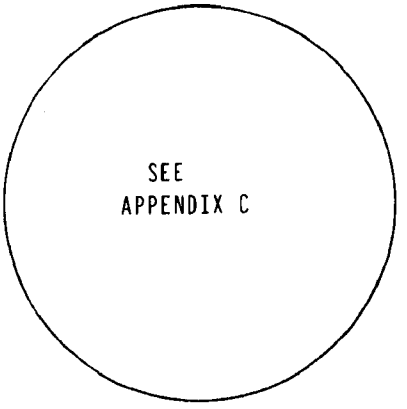
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	98	33	74	
Facilities Meeting 1982 Permit Requirements+	--	19	57	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	--	58%	77%	
Percentage of Flow For Which Requirements Met+	--	67%	86%	
Facilities Needing Upgrading	--	33	17	384

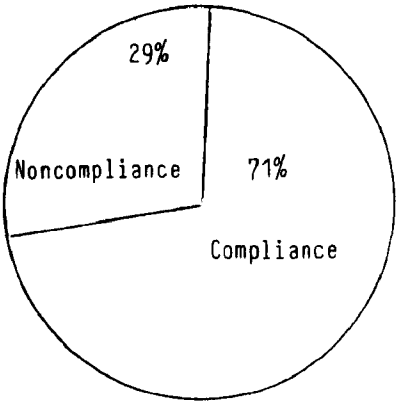
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



8. Non-Municipal Facility Compliance

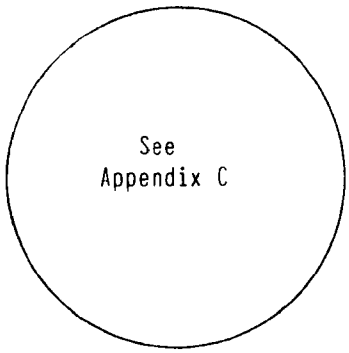
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	34	0	82	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	--	--	81	
Percentage of Facilities for Which Requirements Being Met	--	--	99%	
Percentage of Flow for Which Requirements Met+	--	--	99.9%	916

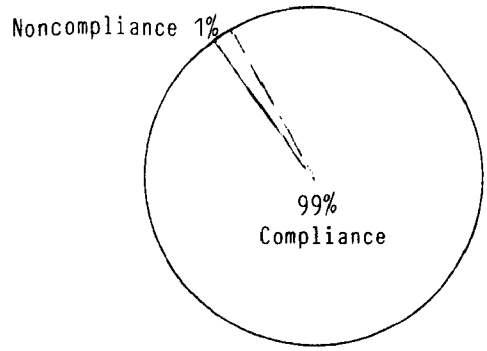
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Most nonpoint source problems within the State originate from agricultural practicies, urban runoff, and construction activities. Major problem areas are southeastern, southwestern and east central portions of the state due to agricultural practices, soil types, and population densities. Control programs for agricultural and urban runoff loadings are on a voluntary basis. The Soil Erosion and Sedimentation Control Act of 1972, a regulatory program, has significantly reduced the loadings from construction related activities.

Ongoing activities include the Southeast Saginaw Bay Coastal Drainage Basin Monitoring and Evaluation Project (funded by Great Lakes National Program Office), the Saline Valley Rural Clean Water Project, and a USDA river basin study in the St. Joseph River (Saginaw River basin study is in proposal stages) under P.L. 83-566. Demonstration projects (108A) in progress are the Bean Creek Conservation Tillage Project, the Otter Creek Special Conservation Tillage Project, and a CSO control project in the Saginaw area.

The State participated in the Lake Erie Wastewater Management Study which recommended wastewater management programs to restore and rehabilitate Lake Erie. The study determined (1) reduction of diffuse sources of phopshorus would be required for restoration, and (2) widespread adoption of best management practices, particularly conservation tillage and no-till agricultural methods, would achieve the reduction.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	S/W	I/L	I/L	M/L	S/L	N/A	I/L
Primary Pollutants	OxDe Nut.	Nut. SS,T	SS	pH	SS	LoFlo	--	OxDe

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Michigan has a stepped process for enforcement. NPDES permit conditions (scheduled and effluent) are tracked via computer assistance with monthly updates. Minor excursions and infrequent violations are resolved by logged phone calls and/or letters. For repeat violators and more dramatic excursions, formal Notices of Non-Compliance are issued. If these measures fail to bring compliance, administrative proceedings for permit revocation and/or litigation are commenced.

   At all levels, staff at the Department are working with the permittee to secure a quick resolution to the problem. If Department efforts fail, the matter is referred to the State Attorney General for litigation. In such cases, correction programs are always sought and usually punitive penalties in the form of fines and/or liquidated damages.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

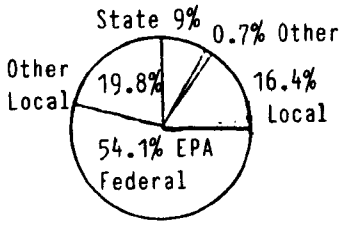
Total Number of Facilities:	32
Number of Pre-Administrative Actions:	12
Number of Administrative Actions:	18
Number of Judicial Actions:	2

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 3,374.6 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,825.0 Million
Other Federal:	$ 25.6
State:	$ 302.0
Local Match:	$ 552.0
Other Local:	$ 670.0

C. Program Activities

NPDES Permit Program - The Michigan NPDES Permits Program consists of the issuance of discharge permits for all dischargers to waters of the State. The program has evolved from one with its basic emphasis being the elimination of gross pollutants to one where selective intensified actions are being taken in areas of toxicant discharges, pretreatment programs and sludge disposal.

Planning Program - In 1973, the Water Development Services Division prepared basin plans under Section 303(e) for major subdivisions of the state. In 1975, the planning emphasis shifted to the areawide concept with fourteen regional planning and development commissions being given grants to carry out planning under this program. The areawide plans were incorporated into a Statewide Water Quality Management Plan during 1979. Following the completion of the State Plan, the State developed the Groundwater Strategy. Current efforts in water quality planning are centered around the Section 205(j) grant program.

Inland Lakes Program - In 1972 Michigan began sampling a limited number of lakes to obtain "base line" information. The Inland Lake Management Unit was established in 1973. A concentrated effort was then made to sample, at least once, all Michigan lakes greater than 50 surface acres with a public boat launch facility. This task was completed in 1981. Lack of state funds prohibit the monitoring lakes on a routine basis. The only monitoring effort available is through the Self-Help program which depends on volunteer riparian assistants.

Point Source Studies - In 1972 the sampling surveys focused on several basic water pollution concerns. Most of the surveys were first time investigations where a large number of discharge points had to be assessed. Sampling was usually limited to standard parameters - BOD, solids nutrients, bacteriological. Once mandated improvements were in place (1977 and beyond), the emphasis shifted to permit limit compliance and organic and toxic chemical investigations.

Monitoring Program - From 1973 to 1983 Michigan's surface water quality monitoring programs have been reduced by 79%. In 1973, 436 station locations were sampled at various frequencies for a total of 2,999 station visits/year. In 1983, 58 stations are being sampled for a total of 616 station visits/year. The Primary Monitoring Network has at one time or another, consisted of the following monitoring programs: Great Lakes Tributary, Urban Area, Natural Areas, Detroit River Radioactivity, Water Intake, and Degraded Areas. All programs have been discontinued except portions of the Great Lakes Tributary, the Detroit River, and Urban Areas. Biological monitoring and special studies are conducted at prioritized locales; priorities are generally established in conjunction with permit renewal schedules.

Construction Grant Program - The program originated through the Clean Water Act, established a grant program to assist communities in abating serious water pollution problems by providing secondary waste treatment or treatment necessary to meet the water quality standards. The act was amended to provide delegation of the grant program to the states for administration. The initial delegation agreement between EPA and the State of Michigan was signed in April of 1979. As of fiscal year 1981, advanced treatment projects funded require rigorous review and approval from EPA to assure necessity. This policy altered the emphasis of funding by emphasizing restoration of a use rather than mere compliance with water quality standards.

VI. SITE-SPECIFIC SUCCESSES

A. Detroit River[1]

The Detroit River flows 32 miles from Lake St. Clair to Lake Erie. The river has always been important for navigation, water supply, fishing, and recreation since people first lived in the area and is now more important than ever for these uses. Thus, it is essential that the quality of the water be high enough to assure these uses.

The southeast area is now the most heavily populated and industrialized area in Michigan contributing a significant waste load to the Detroit River. There are over sixty industrial and municipal wastewater dischargers to the Detroit River. Three major tributaries, and many combined sewers and storm sewers also flow into the river. Being fed by the clean waters of the upper Great Lakes, the Detroit River is flushed quickly when the waste inputs are reduced.

There are six municipal sewage treatment plants serving a population of 3,300,000, discharging to the Detroit River on the Michigan side. Three others discharge from the Canadian side. Of these nine plants, the largest is the Detroit Metro Sewage Treatment Plant which discharges about seven times the total combined flows of all eight other plants. Any major changes in loadings are due mainly to the Detroit plant.

Since 1971, there has been a decline in Michigan municipal phenol loadings of about 30%, and in total phosphorus of about 40% even though flow has increased approximately 26%. The decline in phenols is due in part to the secondary treatment unit in the Detroit plant which started up in 1975, and to Detroit's industrial pre-treatment program.

The decline in total phosphorus loadings is largely due to the required reduction of phosphorus in household laundry detergents by Michigan's Act 226 of 1971. With less phosphorus coming into these treatment plants, less is discharged. Phosphorus removal processes initiated at the sewage treatment plants also contributed to this decrease in phosphorus loadings.

There are about 35 Michigan industries which discharged wastewater directly to the Detroit River during the past eleven years. There have been major reductions in Michigan point source pollutant loadings to the Detroit River since 1966 despite a 17% increase to the amount of industrial wastewater discharged. Total iron from Michigan industrial sources has dropped 81%, chlorides 76% and total phosphorus 63%. The major phosphorus discharger, Monsanto Corporation, Inorganic Chemicals Division plant, has under a voluntary stipulation, reduced its total phosphorus loads from 1,520 kg/day to 17 kg/day.

Continuous oil discharges from industries have been significantly reduced with an 80% decrease in total point source discharges of oil since 1963. Oily scums along the shore have disappeared. A duck kill used to occur almost every winter when ducks would land in ice-free areas, which were once covered with oil. This has not happened since 1967.

Sport Fishing and recreation opportunities have increased. Salmon have been planted and are now being caught in the river. Trout have also recently been planted in the lower Detroit River. In 1978 alone over 500,000 people made use of the 0.1 mile Belle Isle bathing beach.

[1]The Detroit River, 1966-1976, A Progress Report

B. Grand River

The Grand River has its headwaters located in northeast Hillsdale County and discharges into Lake Michigan at Grand Haven. The drainage basin encompasses 16 counties and approximately 5,600 square miles. The river flows 260 miles through predominatly agricultural land with light and heavy industry found in the Jackson, Lansing, Grand Rapids and Grand Haven urban areas.

In the early 1970's water quality problems in the Grand River were related to dissolved oxygen and heavy metals. The major problem areas were the industrialized urban areas where standards violations were documented for significant distances below these areas. Numerous fish kills were reported on an annual basis. Discharge from combined sewer overflows were common and add to these problems.

Since the early 1970's the municipal and industrial wastewater treatment facilities have upgraded the level of treatment provided. Five municipal facilities, representing a population of 37,800 and a flow of 7.6 MGD, have upgraded from primary to secondary treatment. Four municipalities, representing a population of 282,200 and a flow of 66 MGD, have upgraded from secondary treatment. Pre-treatment programs have eliminated a substantial portion of the heavy metal loadings and voluntary sewer separation programs have significantly reduced loadings from combined sewer overflows.

With the reduced municipal and industrial loadings, a quality fishery has returned. A significant sport fishery exists throughout most of the river. Through a continuous stocking program the river now has a fall salmon season and the lower portion of the river has a fall and spring steelhead and lake trout season. Because of this, the use of the Grand River as a fisheries resource has increased significantly.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

In the last 10 years, special state emphasis has been placed on a number of program areas other than those previously mentioned. A major effort is underway dealing with groundwater contamination identification and clean-up. Additional efforts include hazardous waste (Hazardous Waste Management Act), toxic evaluation (Toxic Substance Control Commission Act), wetland and shoreline protection (Wetland Protection Act), phosphorus load reduction (Detergent Phosphorus Ban) and soil erosion (Soil Erosion and Sedimentation Control Act).

Part B. Major Remaining Problems:

____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
__X__ - Groundwater resource quality protection or supply assurance.
__X__ - Identification and control of toxic pollutants from industrial and non-point sources.
__X__ - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

Special concerns that the state will be addressing in the water quality program include groundwater and control of toxic pollutants. Major groundwater quality protection issues include (1) issuance of permits for existing and new groundwater dischargers, (2) licensing or closing of landfills, and (3) compliance tracking and enforcement. Serious pollution problems remain in areas such as abondoned and unabandoned industrial sites and dumps and petroleum products, leaks and spills.

A second area of special concern is that of toxic pollutant control. With continuous technological and scientific advances in this area, in addition to the problems of understanding and controling previously identified areas of concern, the problem is now and will remain a high priority.

A significant investment has been made in the construction of wastewater treatment facilities in the last 10 years. Continued progress in upgrading facilities, plant operation, and maintenance will be of special concern.

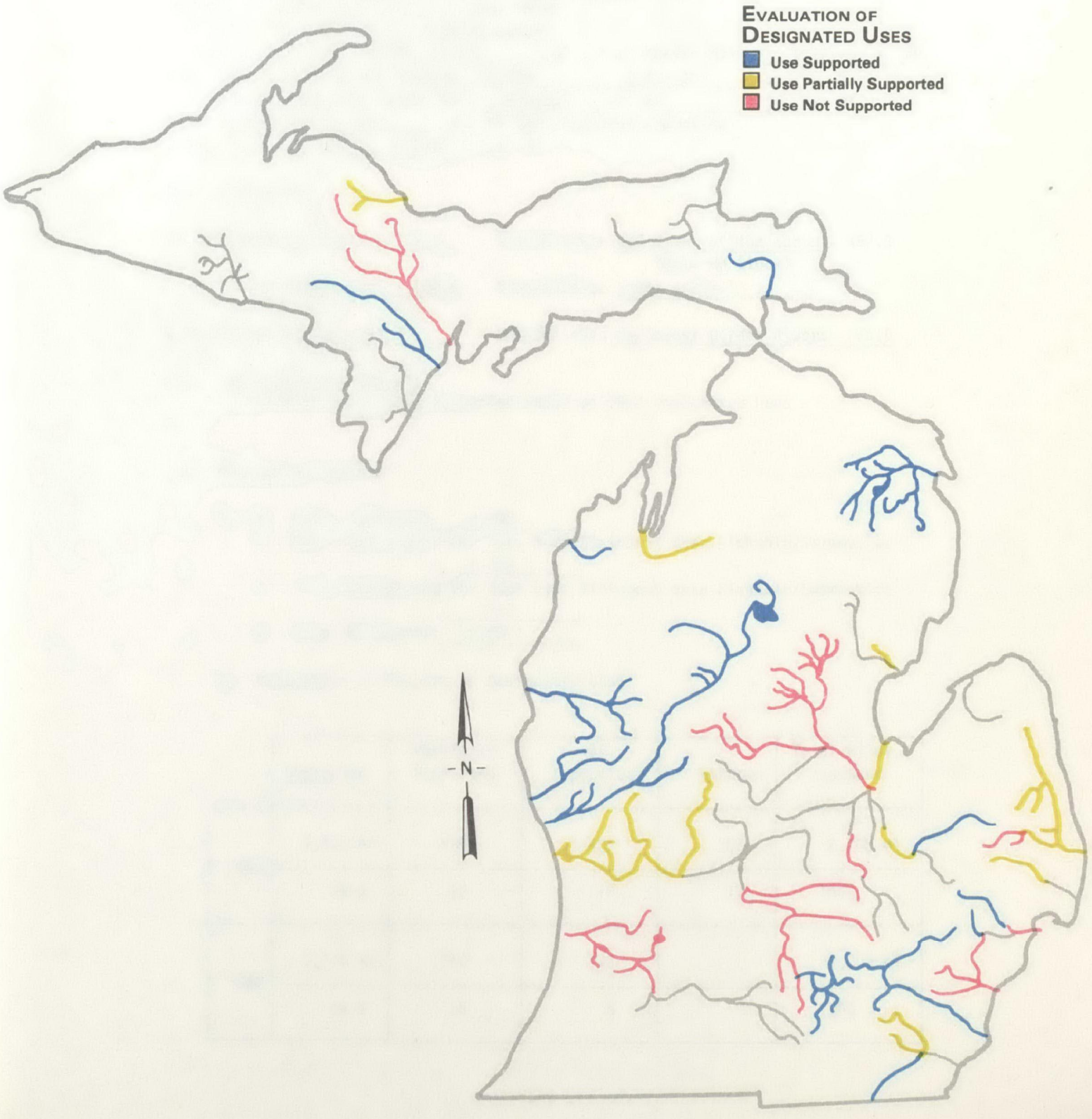
AGENCY PREPARING REPORT: Michigan Department of Natural Resources
Surface Water Quality Division

CONTACT PERSON & PHONE #: William D. Marks, Acting Chief
(517) 373-2347

DATE: August 31, 1983

MICHIGAN
1972

MICHIGAN
1982



State of Minnesota*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,806,103 1980 4,077,148
State Surface Area 85,447 sq. miles
# of River Systems/Basins 9 major basins
# of River and Stream Miles 91,871 mi.; # of Border Miles* 1,121.3 mi.
# of Lakes and Ponds and Acreage 12,034 / 3,411,200 ac.
# of Marsh or Wetlands ac./sq.mi. 2,600,000 ac. or _____ sq. mi.
# of Coast Miles 272 mi. of Lake Superior shoreline
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage St. Croix - 129.7
Name/Mileage Red River of the North (Bois de Sioux) - 457.3
Name/Mileage Mississippi - 136.6
Name/Mileage Rainy - 292.1
Name/Mileage Pigeon - 49.7
Name/Mileage Northeast Border Rivers - 55.9

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

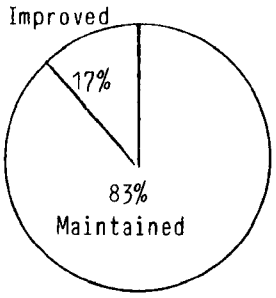
1. a. Miles Assessed: 2,708
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,209
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 110
   d. Miles Monitored: 2,537

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	1,455 mi.	539	407	307	2,708 mi.
	54 %	20	15	11	100%
1982	1,776 mi.	760	172		2,708 mi.
	66 %	28	6		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:		468
Miles Degraded:		
Miles Maintained:	2,240	
Unknown:		

B. Lakes and Reservoirs

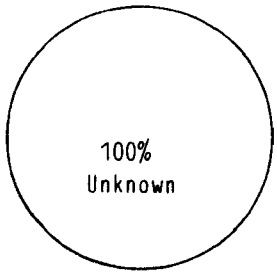
1. a. Acres Assessed: 17,298
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 17,298

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	10,566 ac.	8,471			19,037 ac.
	56 %	44 %			100%
1982	11,256 ac.	6,042			17,298 ac.
	65 %	35 %			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:	all**	

** Lakes monitored in 1972 are different than those monitored in 1982; therefore, there is no basis for indicating a change in trend.

C. Estuaries and/or Oceans

Estuaries Oceans

1. a. Square Miles/Miles Assessed: _____/_____
   b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable: _____/_____
   c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____/_____
   d. Sq. Mi./Miles Monitored: _____/_____

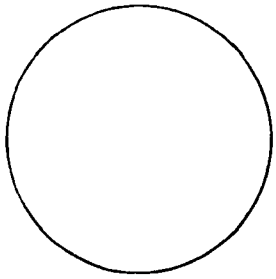
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%				100%
1982					
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

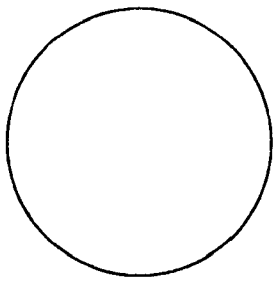
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

D. Great Lakes

1. a. Miles Assessed: 247

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 247

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Miles Monitored: 247

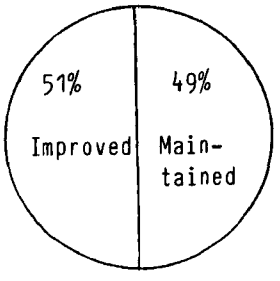
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	120 mi.	127*			247 mi.
	49 %	51%			100%
1982	247 mi.				247 mi.
	100 %				100%

* Due to presence of asbestos-like fibers

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

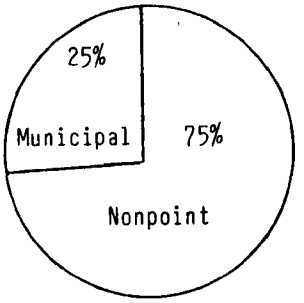


	Within Category	Change in Category
Miles Improved:	127	
Miles Degraded:	0	
Miles Maintained:	120	
Unknown:		

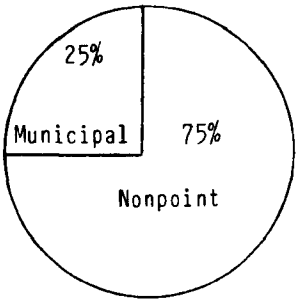
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

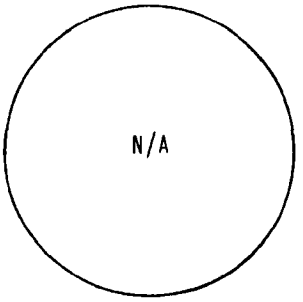
a. Streams and Rivers



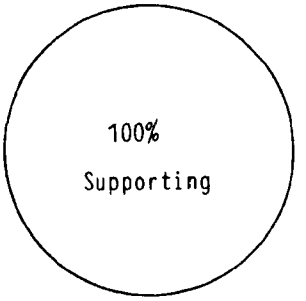
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			Nut.
Industrial		X	X			X	X		Toxics
Non-Point	X	X	X	X		X	X		
Other (inc. natural)			X						

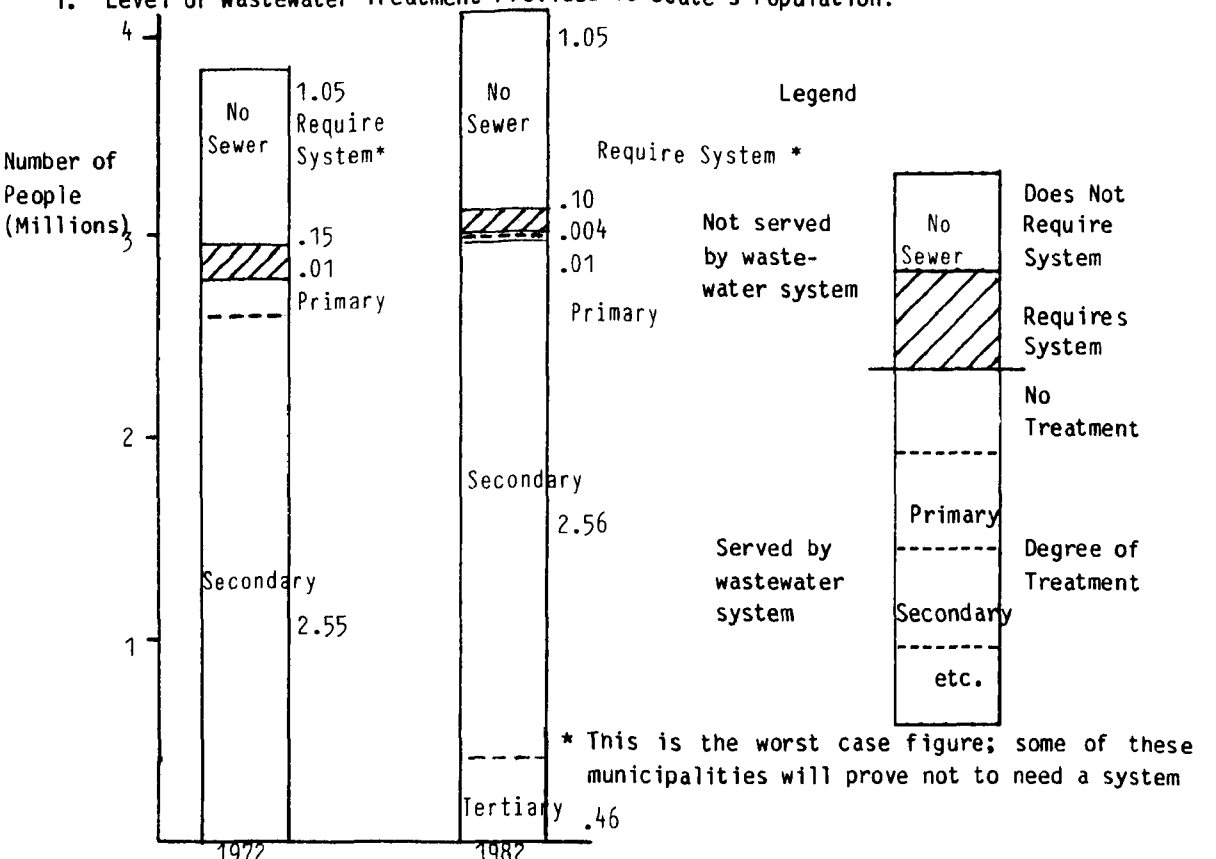
*Number of Stream/River Miles Affected by Toxics: 751
*Number of Lake/Reservoir Acres Affected by Toxics: 348,471
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

III. POINT SOURCES

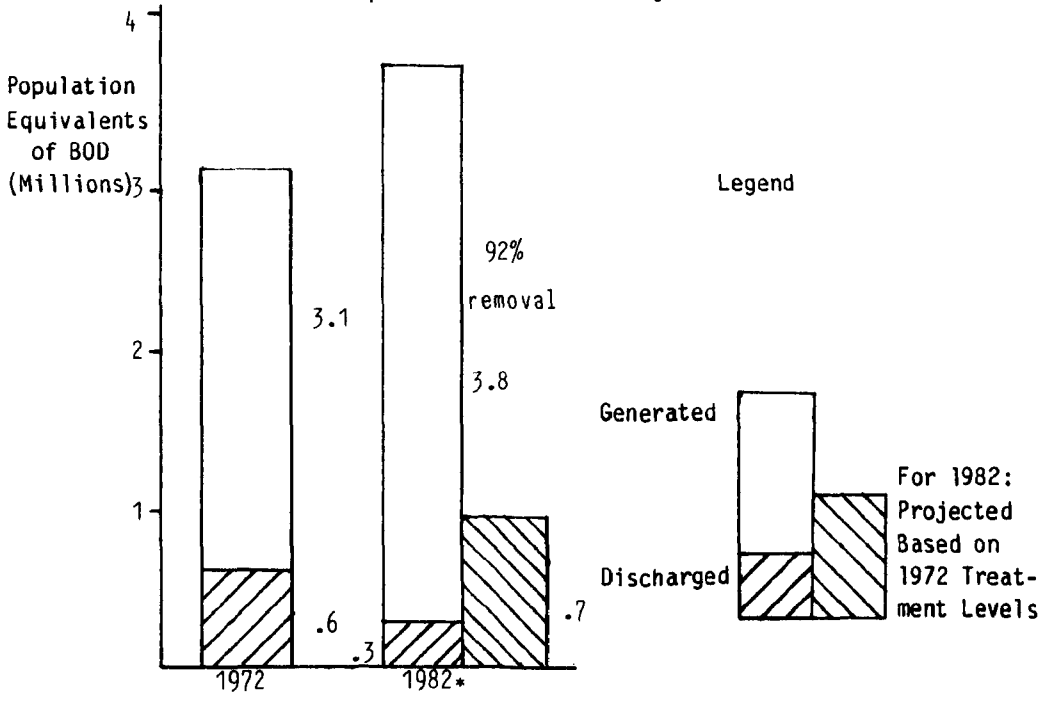
A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



* This is the worst case figure; some of these municipalities will prove not to need a system

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Figures provided are for 1981

*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

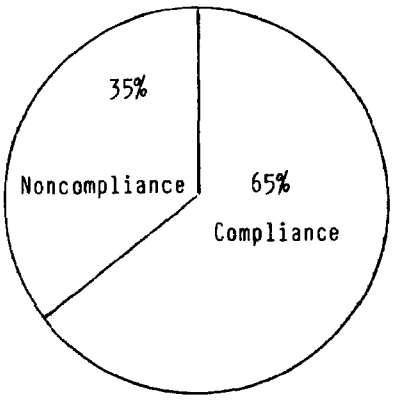
a.

	1977	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	52	20	32	
Facilities Meeting 1982 Permit Requirements+	--	16	28	Total Permits in Effect in 1982 539
Percentage of Facilities for Which Requirements Being Met	65%	80%	88%	
Percentage of Flow For Which Requirements Met+	47%	97%	95%	
Facilities Needing Upgrading		20	0	

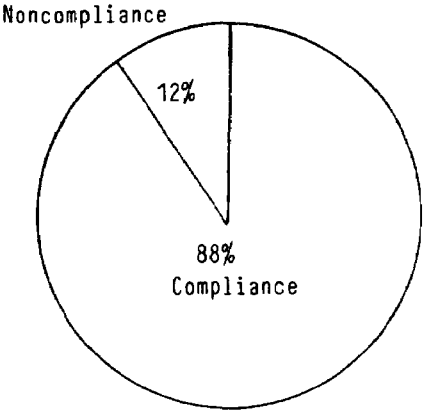
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1977 vs. 1982
By Percentage

1977:



1982:



B. Non-Municipal Facility Compliance

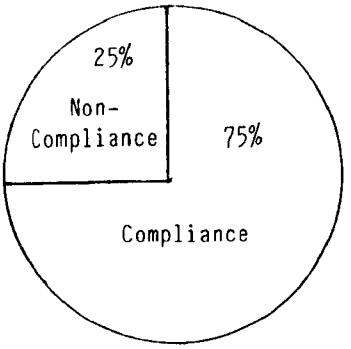
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1977	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	44	0	44	
Facilities Meeting 1982 Permit Requirements+	--	0	35	Total Permits in Effect in 1982 472
Percentage of Facilities for Which Requirements Being Met	75%	0	80%	
Percentage of Flow for Which Requirements Met+	51%	0	97%	

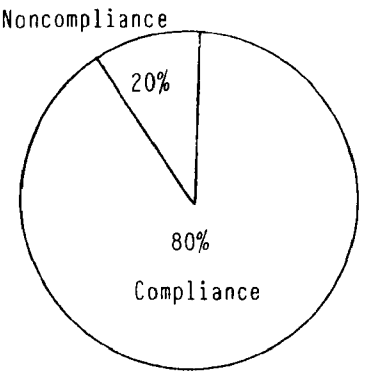
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1977 vs. 1982
By Percentage

1977:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

In Minnesota, nonpoint sources are responsible for most of the pollution in our surface and ground waters. Our nonpoint source problems are, in general, regional. Northern Minnesota has problems with inappropriate shoreline development, mining and silviculture. The Central region has problems with agricultural runoff and hydrologic modifications and construction. Southeastern Minnesota has problems with urban and agricultural runoff and residuals. Southern and Western Minnesota has problems with agricultural runoff and hydrologic modifications. We estimate that about 75% of our streams, lakes and wetlands are adversely affected by nonpoint sources. Field studies and routine monitoring have shown the Minnesota River Basin to be particularly troubled.

Addressing such nonpoint source pollution problems has proven difficult. Although the EPA has assisted with 208 planning and the Lake Restoration Program, the U.S.D.A. has helped with a Rural Clean Water Project at Garvin Brook (near Winona), federal nonpoint source pollution control measures have been very feeble.

In response to weak federal assistance on nonpoint source pollution control, the State of Minnesota has enacted two pieces of legislation designed to address nonpoint source pollution: the Metropolitan Surface Water Management Act and the State Agricultural Land Preservation and Conservation Policy Act. Although these Acts provide a framework for addressing nonpoint control, the State does not have sufficient funding to adequately implement the Acts.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	S/W	I/L	S/L	S/L	S/W	I/W	M/L
Primary Pollutants	Nut, SS,T	Nut, SS,T	SS,T	M SS,O*	SS,T	LoFlo,O*	Sal	C,OxDl,P

O* - direct habitat destruction

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The MPCA initially reviews discharge monitoring reports and correspondence files for violations. When a significant violation surfaces, a phone call or letter is transmitted to the discharger. If violations cannot be corrected in a timely manner, a meeting will be arranged to discuss the problem and identify a compliance schedule. If the corrective action will be timely, no other action will be initiated. If the corrective action will take additional time, a voluntary stipulation agreement with a schedule for needed improvements will be developed. If the discharger fails to voluntarily agree on needed improvements, legal action (via a lawsuit) can be initiated with final resolution dictated by the court. The MPCA has an established Municipal Enforcement Strategy to identify the management process for initiating enforcement actions.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

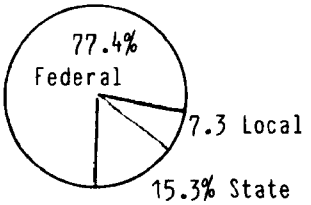
Total Number of Facilities:	55
Number of Pre-Administrative Actions:	32
Number of Administrative Actions:	23
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $900,954,269 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 697,371,800 Million
Other Federal:	$ unknown
State:	$ 137,590,533
Local Match:*	$ 65,991,936
Other Local:	$ unknown

*1972-1979: 10% local share
1980-1982: 8% local share

C. Program Activities

The MPCA's Division of Water Quality has focused its efforts on preventing clean waters from becoming polluted and on abating pollution where it already exists. Its Clean Water Program is implemented through cooperation of five sections and 150 staff members.

The Monitoring and Analysis Section develops water quality standards. These consist of ambient standards for Minnesota's waters as well as effluent limitations for individual dischargers to ensure that those ambient water quality standards are met. The section also routinely monitors lakes and rivers at sampling stations throughout the state, conducts additional case-by-case studies of water quality and monitors the effects of pollutant discharges through field investigations and computer modelling.

Any industry or municipality with a direct discharge into Minnesota's waters must obtain a permit from the Water Quality Permits Section. Permits set specific limits on what may be discharged into waters of the state and, if not currently being met, contain schedules to bring the discharger into compliance with those limits. In addition to almost 1,500 such permits, this section also issues liquid storage and animal feedlot permits, PCB certificates of exemption, and river-dredging certifications.

The Enforcement Section monitors the performance of permit holders and takes enforcement actions in cases of violation. An Emergency Response Unit located in this section reacts on a 24-hour basis to several hundred spills per year of oil and other hazardous materials.

The Technical Review Section assists municipalities and industries in ensuring that their watewater treatment facilities are built and operated so as to meet state water quality standards. An Engineering Unit reviews wastewater facility designs so that the most cost-effective and environmentally sound treatment methods are selected, and an Operations and Training Unit conducts comprehensive training and certification programs for operators of wastewater treatment plants and solid waste facilities.

The Grants Section administers the joint federal-state wastewater treatment facility construction grants program, which provides up to 90 percent of the construction costs for local treatment plants. The section both guides the municipalities through the requirements of the program and ensures that the available grant moneys are used to construct those facilities that will provide the greatest water quality benefits. More than 170 municipalities have been assisted in building or upgrading their systems since 1968.

VI. SITE-SPECIFIC SUCCESSES

1. St. Louis River and St. Louis Bay - Comparison of water quality data on the St. Louis River and St. Louis Bay from the last ten years reveals a remarkable improvement in dissolved oxygen and significant decreases in BOD, total phosphorus and total ammonia values. The dramatic improvement in chemical water quality parameters corresponds to the start up of the sophisticated regional wastewater treatment plant at Duluth, the Western Lake Superior Sanitary District (WLSSD) plant. WLSSD brought together seventeen municipal dischargers and seven major industrial dischargers to the River into one system, discharging into St. Louis Bay. Elimination of the discharges from the St. Louis River and the excellent treatment supplied by the new plant have improved the fishery in this area dramatically. The residents have detected the change as well and in increasing numbers are returning to fishing the area and use of this recreational resource.

2. Silver Bay - For many years Reserve Mining Company discharged 67,000 tons of waste tailings into Lake Superior every day as a result of its processing taconite into iron ore pellets. Associated with these tailings were cummingtonite-grunerite mineral fibers that the federal courts ruled to be indistinguishable from commercial anosite asbestos fibers, a known carcinogen. After lengthy legal battles, the Minnesota Supreme Court ordered construction of an on-land disposal basin for the tailings. That site, Milepost 7, is now in use, and on March 15, 1980 Reserve ceased discharging to Lake Superior. The decrease in total suspended solids and fibers concentration has been quick and dramatic. Levels of fibers monitored at Lake Superior water intakes are now about one-tenth the level present when the discharge existed. Continued improvement with time is expected.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Much of the effort till now has gone to reducing water quality problems through the proven technology of point source control. Improved treatment has provided relatively rapid dividends in improved water quality for rivers and streams in population centers. Lake improvements have been achieved by diversion of nutrient rich effluents or supplying treatment to reduce nutrient levels. High quality waters were protected from degradation by good treatment. Over the past decade, the goal has been to reduce conventional pollutant levels discharged into the State's waters and to eliminate completely all untreated discharges.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

The newest threat to water quality in Minnesota is acid rain. Between 1400-2500 of our lakes are sensitive to acid deposition or about 25% of the lakes classified as fishing lakes. Acid rain may lower the pH of these waters with little buffering capacity so that they become unsuitable for aquatic life. It also may leach increasing amounts of heavy metals, particularly mercury, from the watersheds. The lower pH of the wastes enhances the potential for bio-accumulation of heavy metals in fish tissue, possibly creating a health risk to consumers. Included as threatened are such outstanding national resources as Voyageurs National Park, Superior National Forest, and the Boundary Waters Canoe Area.

Combined sewer overflows in the Twin Cities continue to prevent achievement of fishable-swimmable status for the Metro Mississippi River.

Spills of hazardous materials, especially leaks from underground fuel tanks and pipelines, are causing mounting concern. Many pipelines are aging, and transport of hazardous materials is increasing.

Contamination of groundwater and/or surface water due to improper disposal of sanitary and hazardous wastes has been documented at 60+ sites ranging over the entire State. Many more are suspected.

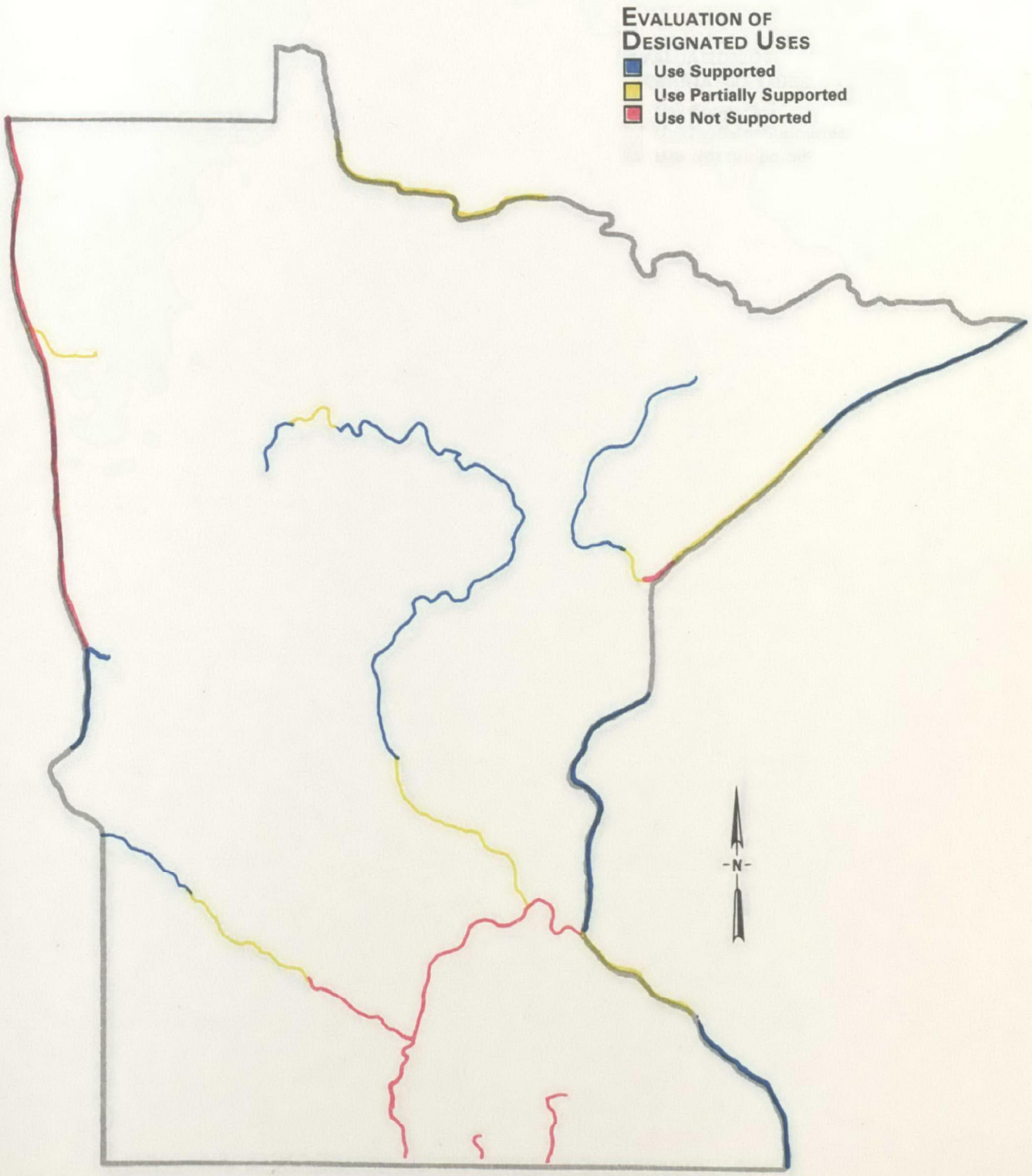
As point source discharges provide better treatment, the contribution from non-point sources grows more important as an obstacle to achievement of the goals of the Act.

AGENCY PREPARING REPORT: Minnesota Pollution Control Agency
1935 West County Road B2
Roseville, MN 55113

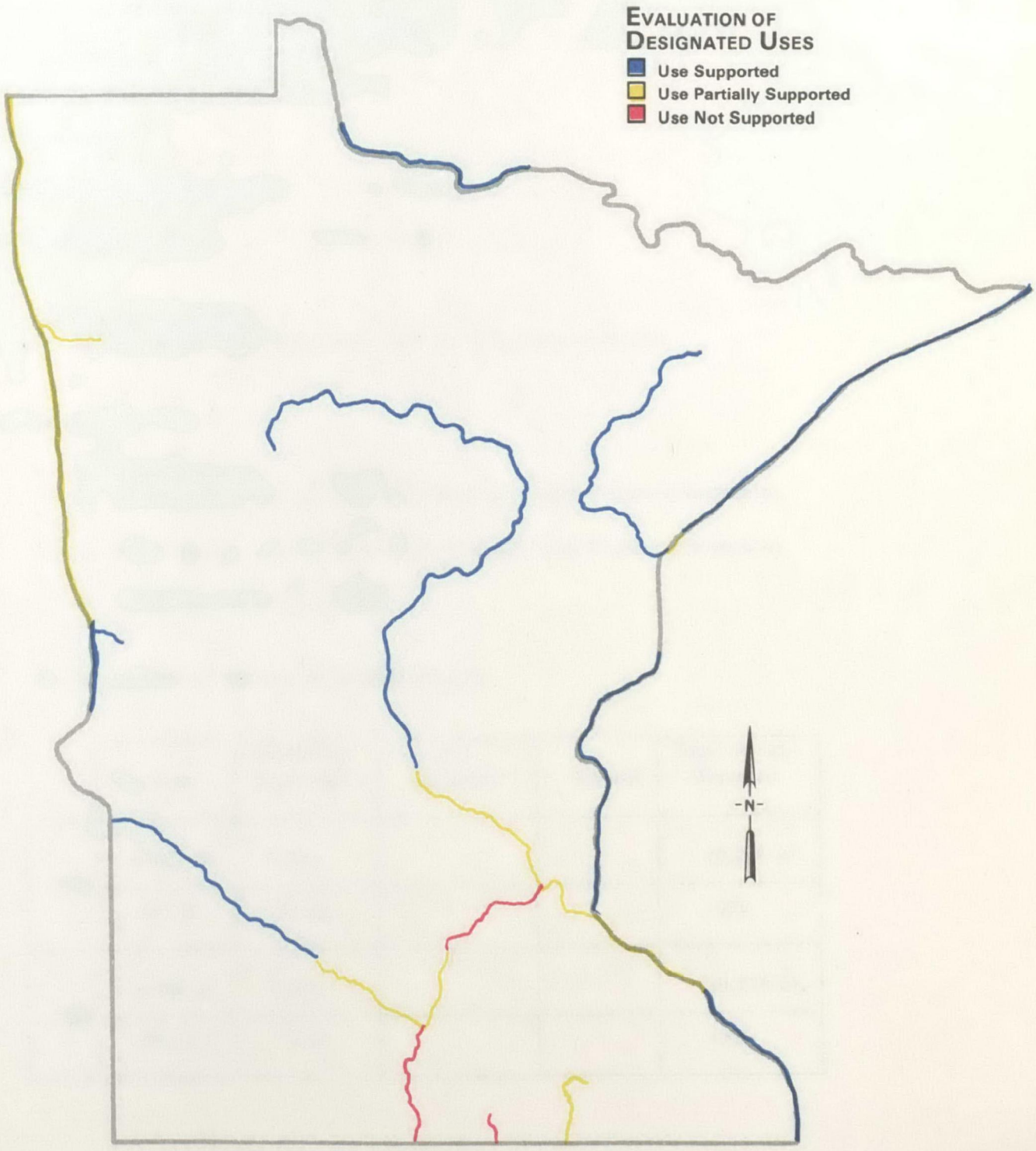
CONTACT PERSON & PHONE #: Virginia Reiner 612/296-7363

DATE: October 7, 1983

MINNESOTA
1972



MINNESOTA
1982



State of Mississippi*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,216,912 1980 2,520,638
State Surface Area 47,700 sq. miles
# of River Systems/Basins 10
# of River and Stream Miles 10,274 mi.; # of Border Miles* 486 mi.
# of Lakes and Ponds and Acreage _____ / 495,191 ac.
# of Marsh or Wetlands ac./sq.mi. 642,000 ac. or 1,003 sq. mi.
# of Coast Miles 81 mi.
# of Estuary sq. mi. 133 sq. mi.

*Border Rivers:

Name/Mileage Mississippi R./410 Name/Mileage _____

Name/Mileage Pearl R./76 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

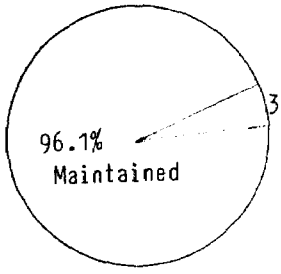
1. a. Miles Assessed: 10,274
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 48
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 5
   d. Miles Monitored: 5,694

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	8,860 mi.	1,414			10,274 mi.
	86.2%	13.8%			100%
1982	9,260 mi.	1,014			10,274 mi.
	90.1%	9.9%			100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	400	
Miles Degraded:	0	
Miles Maintained:	9,874	
Unknown:	0	

B. Lakes and Reservoirs

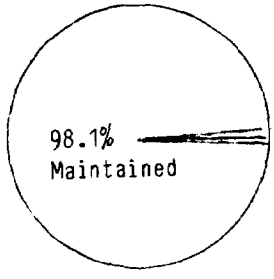
1. a. Acres Assessed: 495,191
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 38,000
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 495,191

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	481,725 ac.	9,580	3,886		495,191 ac.
	97.3%	1.9%	.8%		100%
1982	476,374 ac.	18,817	0		495,191 ac.
	96.2%	3.8%	0		100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	3,886	
Acres Degraded:	5,351	
Acres Maintained:	485,954	
Unknown:		

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	133	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	15	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	/
	d. Sq. Mi./Miles Monitored:	25	/

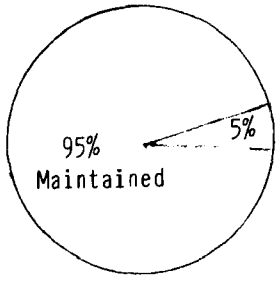
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	111	21	1		133
	83.5%	15.8%	.7%		100%
1982	118	14	1		133
	88.7%	10.5%	.8%		100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

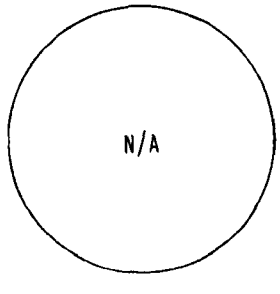
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	.7	
Sq.Mi.Degraded:		
Sq.Mi.Maintained:	126	
Unknown:		

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

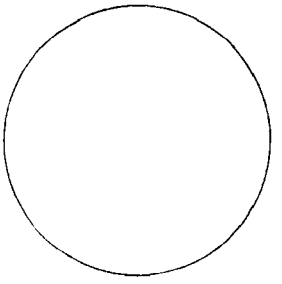
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

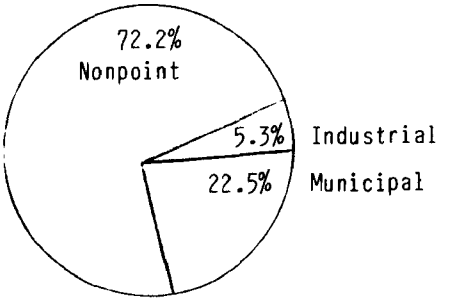


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

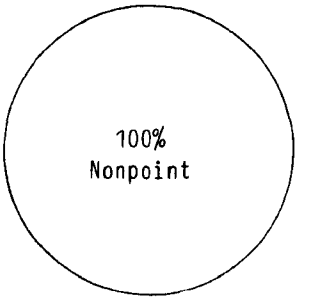
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

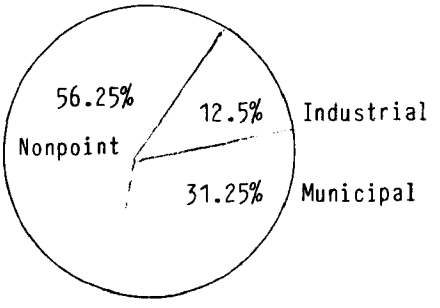
a. Streams and Rivers



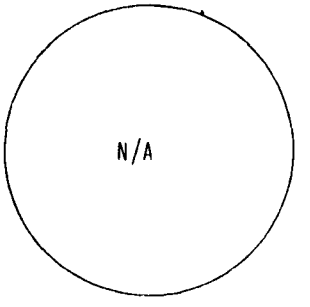
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli, DO
Industrial		X	X		X	X			DO, Nut.
Non-Point	X		X			X	X		Coli. Toxics
Other (inc. natural)									

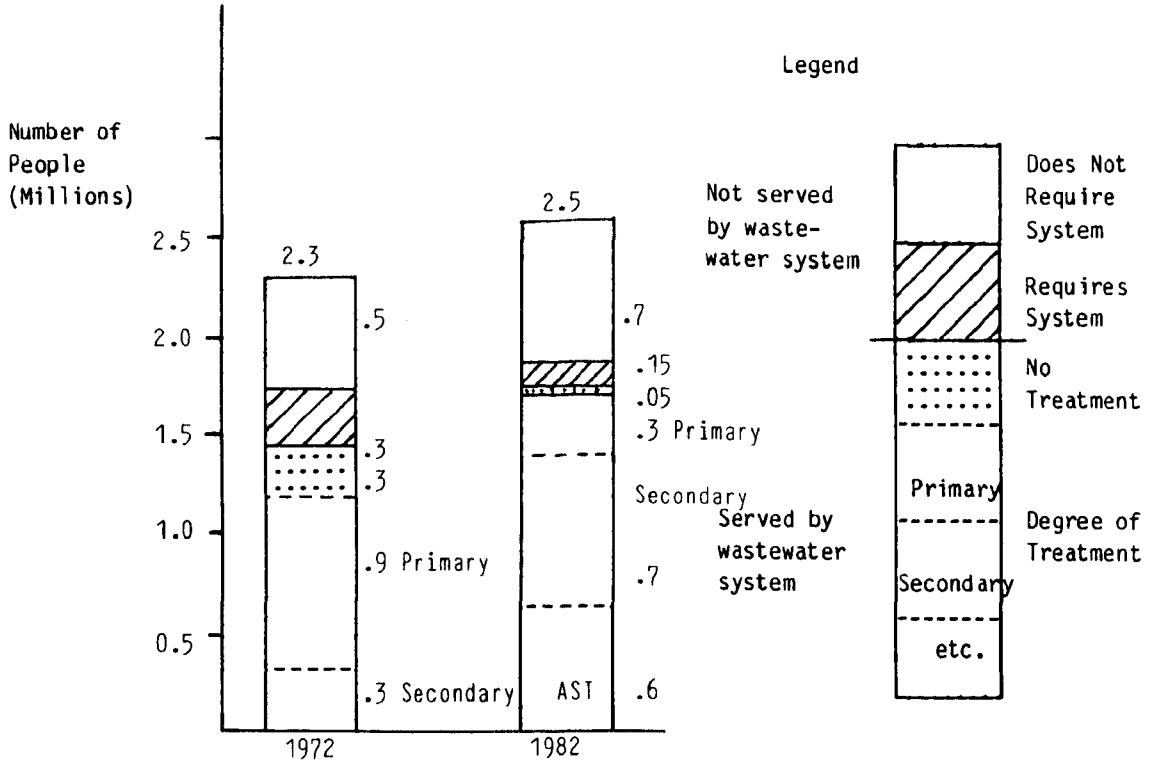
*Number of Stream/River Miles Affected by Toxics: 811
*Number of Lake/Reservoir Acres Affected by Toxics: 12,763
*Number of Estuary Square Miles Affected by Toxics: 0
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

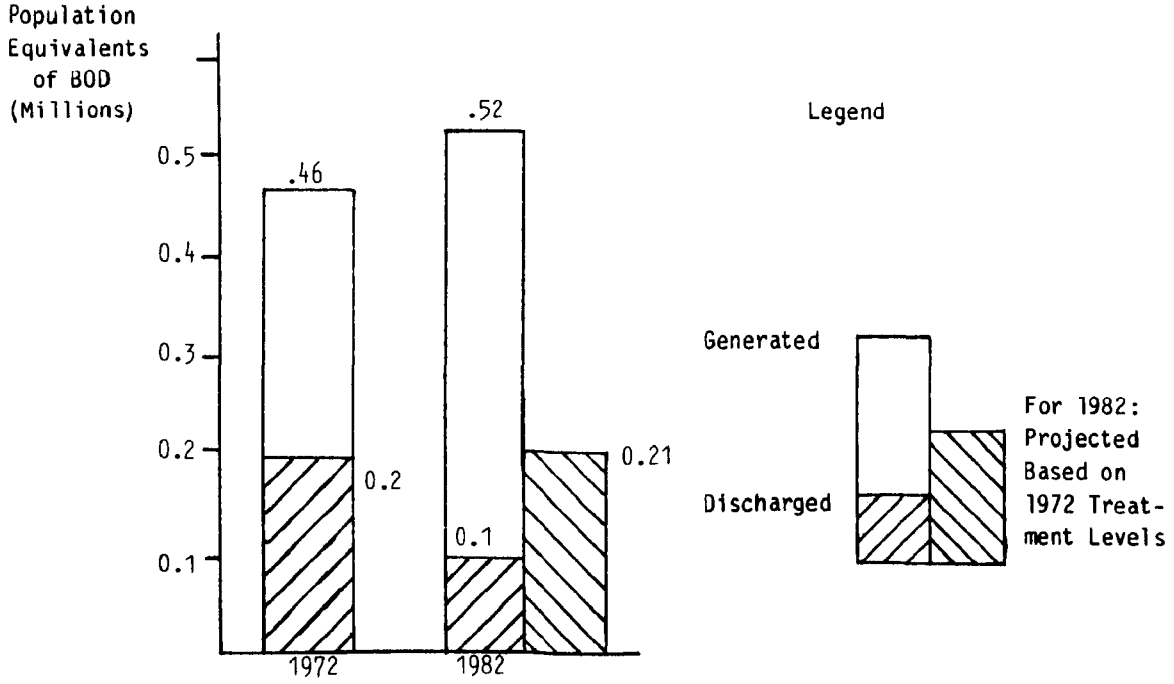
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	43	29	19
Facilities Meeting 1982 Permit Requirements+	3*	23	18
Percentage of Facilities for Which Requirements Being Met	7	79.3	94.7
Percentage of Flow For Which Requirements Met+	4	83	86.8
Facilities Needing Upgrading	40	29	0

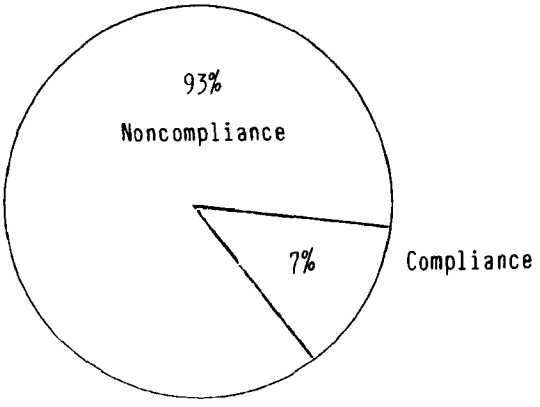
Total Permits in Effect in 1982: 391

+Includes "No-Discharge" Facilities

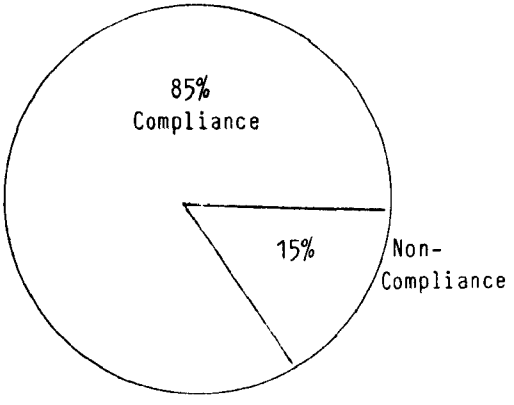
*(1982 final requirements)

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

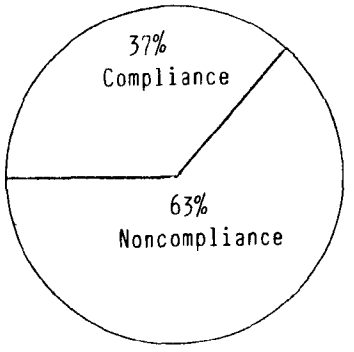
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	75	0	80
Facilities Meeting 1982 Permit Requirements+	28	0	71
Percentage of Facilities for Which Requirements Being Met	37	0	89
Percentage of Flow for Which Requirements Met+	42	0	99

Total Permits in Effect in 1982: 432

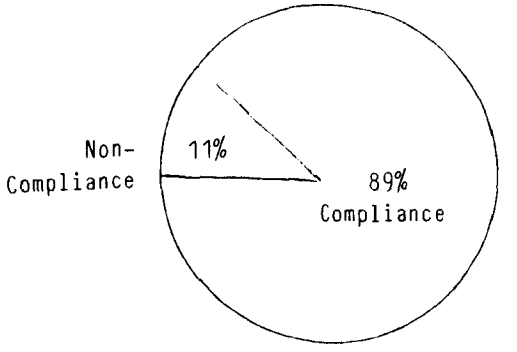
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Studies conducted during 208 Water Quality Planning have revealed two major Non-point pollution problems in Mississippi. These are Agricultural Non-point Source Pollution and Urban runoff along the Mississippi Gulf Coast.

Agricultural non-point source pollution has been a particular problem in the Mississippi Delta region. This area supports very intensive agricultural activities and lakes and streams have been impaired from sedimentation and agricultural chemicals. In recent years more emphasis has been placed on areas outside of the Delta. Hilly land previously not under cultivation is being planted with soybeans. Because of the erosive nature of the soil, these areas may prove to be our highest priority for NPS control. We are utilizing educational programs to promote the use of Best Management Practices to control Agricultural NPS pollution. In addition, we are directing existing cost-share programs toward the highest priority areas.

Extensive planning has been conducted on the Mississippi Gulf Coast to develop a management strategy for providing effective wastewater collection and treatment. However, studies indicate that along with improved wastewater treatment, an intensive effort will be needed to locate and correct sources of bacterial contamination in runoff into Mississippi Sound. Efforts have been taken to develop an implementation strategy that could be used by each municipality along the Gulf Coast.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	S/L	I/L	I/L	I/L	M/L	N/A	I/L
Primary Pollutants	C	Nut. P,SS,T	SS	SS	SS	D.O.		

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The Mississippi Bureau of Pollution Control's approach to enforcement is based upon the precept that each enforcement action taken is more severe than the previous action. Enforcement actions regarding permit violations typically start with the project engineer and may include the following activities: Certified letters, meetings, show-cause hearings, Commission Orders, Commission hearings, or court action. Other tools available include sewer bans and letters to Federal Funding institutions withholding federal funds until the facility is returned to compliance. The Commission on Natural Resources issued 39 Water Division orders in 1982 of which about one-half were to municipalities. Also during the calendar year 1982, five Commission hearings were conducted and penalties were assessed for violations of State water pollution laws to industries in the amount of $47,500.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

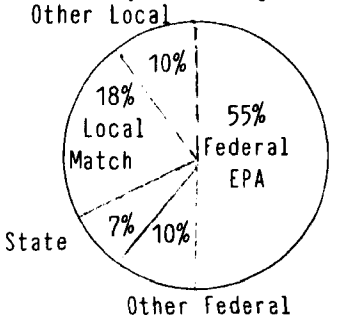
		Mun.	Ind.
Total Number of Facilities:	16	7	9
Number of Pre-Administrative Actions:	4	1	3
Number of Administrative Actions:	5	1	4
Number of Judicial Actions:	2	0	2

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 546 Million

By Percentage



Categories of Sources

Federal - EPA:	55%	$ 299 Million
Other Federal:	10%	$ 57 (FmHa)
State:	7%	$ 40 State Loan Program
Local Match:	18%	$100 (25% of EPA Program)
Other Local:	10%	$ 50 (est.)
Total:		$ 546

C. Program Activities

The Bureau of Pollution Control's Water Division is made up of numerous sections with defined program objectives. These sections include the Municipal Division, Industrial Facilities Section, Commercial Facilities Section, Water Quality Management Section, Field Services, and Emergency Services.

Municipal Division

This section has been delegated the full responsibility for management of the Federal Constructions Grants Program in Mississippi. NPDES Permits are issued for each municipal facility. Emphasis is placed on operation and maintenance to insure permit compliance.

Industrial Facilities Section

This section regulates discharges from industrial facilities through issuance of NPDES permits. In recent years additional programs have been developed in this section. These include the Animal Waste Program, Aerial Application/Pesticide Formulator Program, State Operating Permit Program, and the Federal Underground Injection Control Program.

Commercial Facilities Section

This section issues NPDES permits to privately owned facilities which have collection and treatment systems for domestic sewage. Operation and maintenance inspections are conducted to insure permit compliance.

Water Quality Management Section

This section performs numerous primary and support functions including Water Quality Criteria, Stream Monitoring, Wasteload Allocation, Stream Surveys, Water Quality Certifications for Dredge and Fill Projects, EIS review, Clean Lakes Program, and Statewide Water Quality Planning.

Field Services

This section includes three regional offices which conduct activities such as sampling, operation and maintenance inspections, site inspections, ambient monitoring, and complaint investigations. In addition, the Pollution Control Laboratory conducts all chemical and biological analyses for the agency.

Emergency Services

This section responds to all spills of oil or hazardous materials into waters of the State. They insure that timely and proper clean-ups are conducted.

VI. SITE-SPECIFIC SUCCESSES

Pearl River below Jackson

The Pearl River below Jackson is classified for Recreational Usage. However, pollution has severely impaired its use for recreation and has also reduced the fishing resource of the river. When the Bureau of Pollution Control (formerly the Air and Water Pollution Control Commission) was established in 1968, it was generally recognized that besides general urban runoff the problems in the river were attributed to discharges from the City of Jackson, Filtrol Corporation and Jackson Packing Comapny. The City of Jackson was discharging significant quantities of untreated or poorly treated domestic wastewater into the river. Filtrol Corporation discharged a very acidic wastewater into the river. Jackson Packing Company discharged untreated wastewater from its meat processing operation. Water Quality data during this period indicated that the dissolved oxygen values in the Pearl River below Jackson frequently were below 1.0 mg/l and often fell to 0.0 mg/l. Values for pH were found to be generally below 6.0 units in the summer and at times were below 5.0 units. In addition, high fecal coliform bacteria counts, indicative of untreated domestic wastewater, were found in the river.

In the early 1970's, Jackson Packing Company installed wastewater treatment facilities at its plant. Also, in 1975 a new 46 MGD wastewater treatment plant was placed on line by the City of Jackson. This facility was intended to be the first phase of a Regional Wastewater facility to serve the City of Jackson and other surrounding municipalities. Since 1975, ambient monitoring data taken below Jackson near Byram has revealed a significiant improvement in water quality in the Pearl River. With exception of a period of time after a flood in 1979 incapacitated the treatment facility, the dissolved oxygen has not violated the 5.0 mg/l standard. Fecal coliform, while reduced significantly since 1975, still generally does not meet the recreational standard. (Geometric mean of 200 colonies/100 ml or instantaneous maximum of 400 colonies/100 ml). Other parameters which do not have numerical criteria assigned have shown steady improvement. These are suspended solids, nitrate plus nitrite, and phosphorus. In 1980, Filtrol Corporation initiated use of a deep well injection system to dispose of highly acidic waste which could not be treated on the surface and discharged to the river. Since that time the pH criteria of 6.0 to 8.5 units has not been violated.

A biological evaluation of the Pearl River in 1978 indicated a healthy population. A large number of pollution tolerant organisms were noted after the 1979 flood. Fish sampling indicated large numbers of catfish present, but relatively few game fish. This biological evaluation indicated a water quality rating of fair. The overall water quality of the Pearl River below Jackson is fair-good with an improving trend.

The Jackson Wastewater Treatment Plant is fully operational again and concentrated efforts on operation of the facility have resulted in much better removal rates. Current plans call for expanding this facility to 70 MGD in order to connect more surrounding areas and eliminate potential for bypasses during storm flows.

Okatibbee Creek below Meridian

In the past, the city of Meridian treated its wastewater with an overloaded facility designed to handle 5 MGD. Wastewater flows above this capacity were bypassed. A new 14.0 MGD treatment plant is now completely on-line. The discharge from the plant goes into Sowashee Creek and then to Okatibbee Creek. Both of these streams are classified as Fish and Wildlife.

The water quality in Okatibbee Creek is assessed using data from the ambient station in Arundel. It has been found that this creek is generally not in compliance with Water Quality Standards. Serious problems have been noted with temperature, dissolved oxygen, and bacteria. Slight problems have been noted for pH and nutrients. Impacts from the municipal discharge as well as industrial discharges, urban runoff, and hydrological modifications appear to be responsible for these problems.

Historically, biological assessments of Okatibbee Creek have indicated that it is grossly polluted. The macroinvertebrate population has been dominated by pollution tolerant species. Fish collection has been very difficult due to low populations. Biologically, the stream has been rated as poor.

Thus far during 1983, improvements have been noted now that the new facility is on-line. Ambient data collected during FY'82 and FY'83 show dramatic improvement in coliform levels in Okatibbee Creek. Further, periphyton data collected during 1982 suggest some improvement in water quality in Okatibbee Creek. The Bureau will continue to conduct water quality surveys on Sowashee Creek and Okatibbee Creek during FY'84 to document this improvement. Overall, the water quality is rated as fair with an improving trend.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Historically, the major environmental problems in Mississippi have been the nonpoint source contributions in the Mississippi Delta, municipal and industrial pollution on the Gulf Coast, and pollution in the Jackson, Mississippi area. The pollution problems in the Pearl River below Jackson have been substantially corrected with the construction of a new wastewater treatment plant that went on line in 1975 and the subsequent Regional Sewerage system that has been under construction since the late 70's. The municipalities on the Gulf Coast are now making progress through the formation of three regional sewerage systems for the three counties on the coast. Progress is now being hampered by the insufficiency of funds for the construction of the required facilities. The problem of toxic pollutants has been of major concern in the past but is no longer believed to be a significant or widespread problem in Mississippi. This is primarily true because the state is not heavily industrialized, and the existing waste treatment facilities have been found to be successful in removing much of the toxicity potential of the wastewater. Where necessary we require the use of biological and chemical screening and monitoring.

Part B. Major Remaining Problems:

____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

X - Groundwater resource quality protection or supply assurance.

X - Identification and control of toxic pollutants from industrial and non-point sources.

X - Municipal wastewater plant operation, maintenance, and rehabilitation.

____ - Pollution arising from abandoned industrial and/or mining facilities.

A major remaining problem continues to be insufficient funds for the construction of needed Publicly Owned Treatment Works. This is particularly true of the problems on the Gulf Coast.

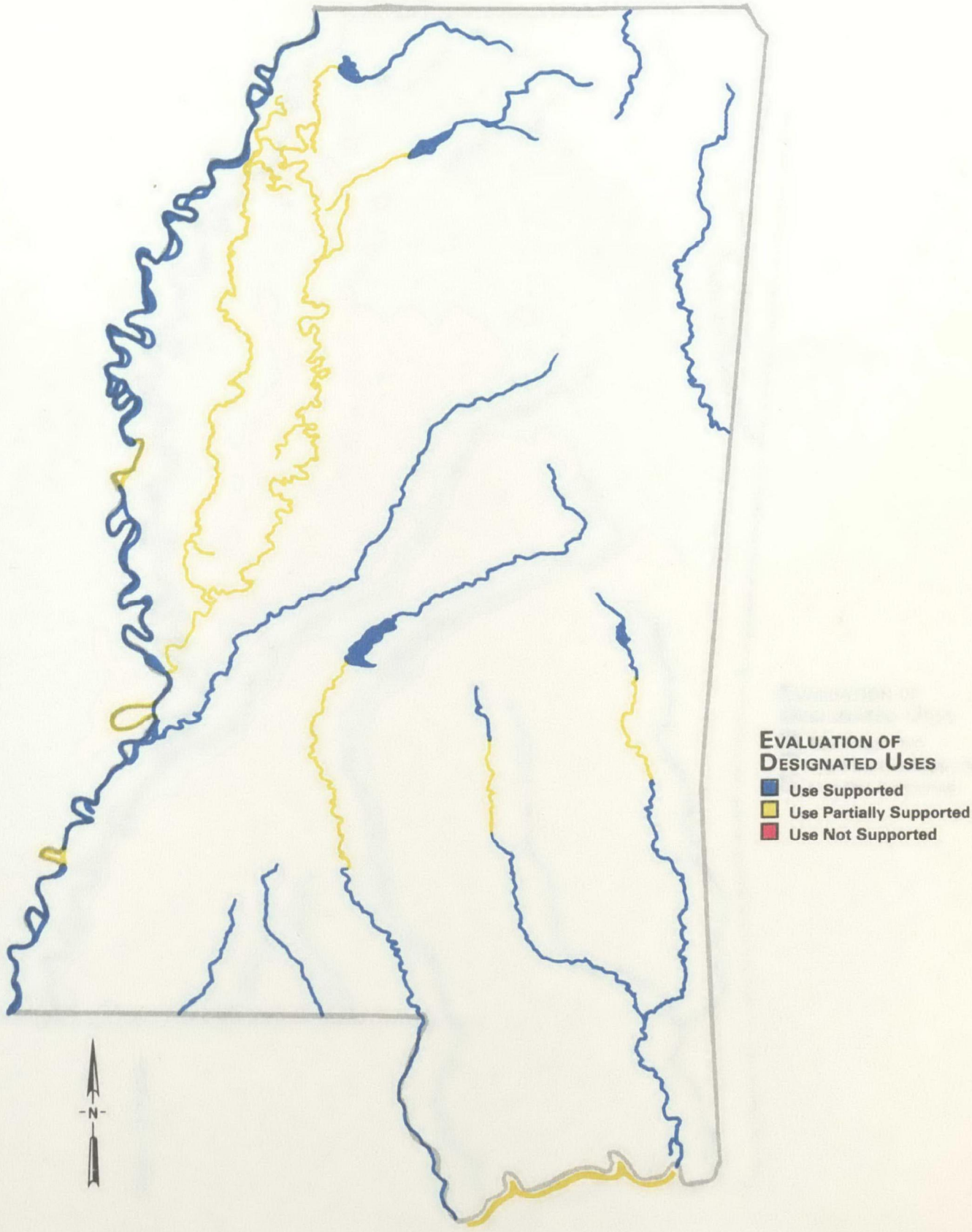
Non-point Source pollution appears to be our greatest challenge in the future. Once the remaining needs for publicly owned treatment works are addressed, control of non-point sources will be required to attain additional water quality improvements. Additional planning will be required to develop implementation strategies for non-point source control. Grants or cost-share programs will be necessary to implement control measures for agricultural activities. Urban runoff, particularly along the Gulf Coast, must be addressed before the water quality problems can be completely solved in this area.

AGENCY PREPARING REPORT: Mississippi Dept. of Natural Resouces
Bureau of Pollution Control
P. O. Box 10385
Jackson, Mississippi 39209

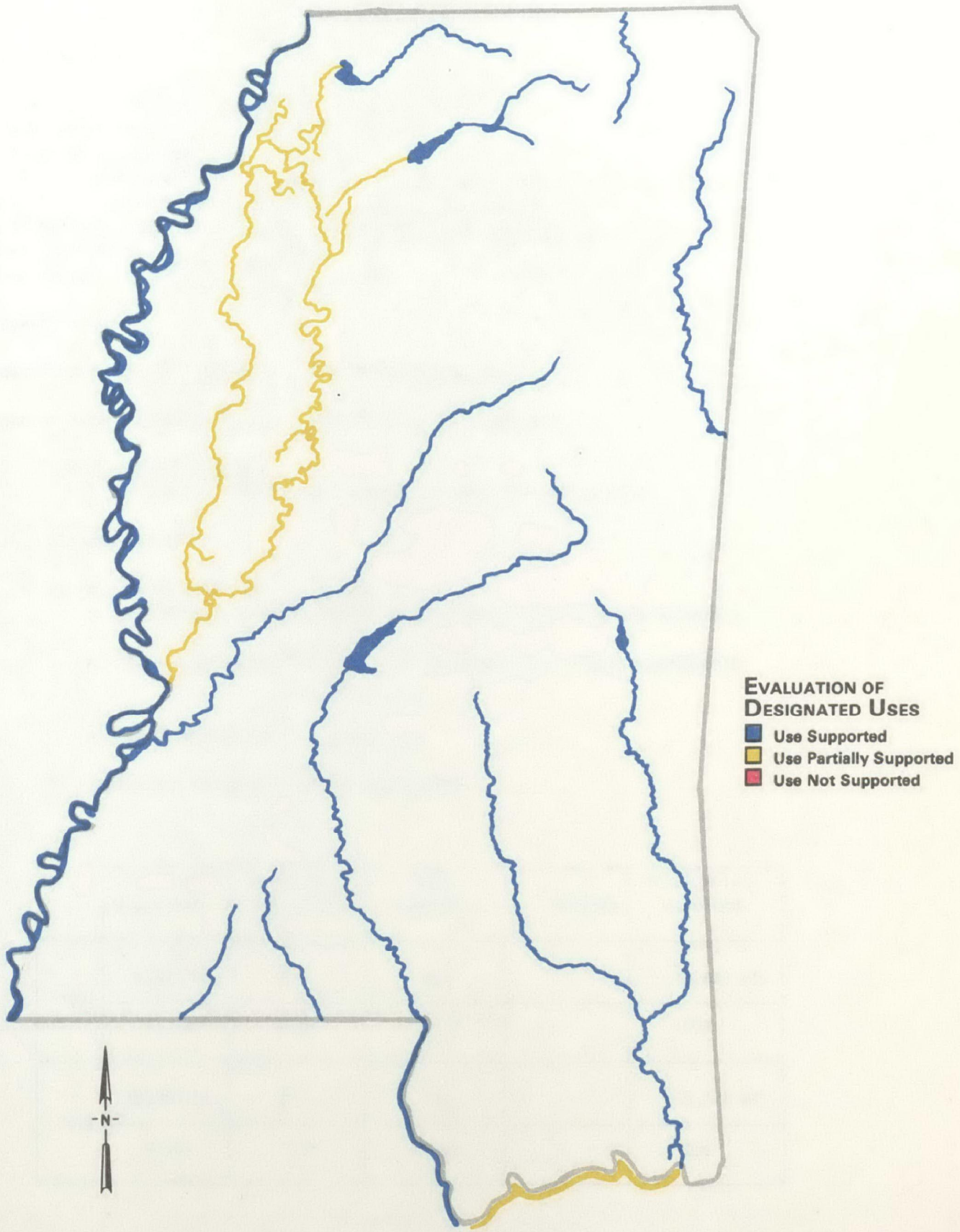
CONTACT PERSON & PHONE #: Robert H. Seyfarth (601) 961-5171

DATE: October 3, 1983

MISSISSIPPI
1972



MISSISSIPPI
1982



State of Missouri*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 4,677,983 1980 4,917,444
State Surface Area 69,686 sq. miles
# of River Systems/Basins 8
# of River and Stream Miles 18,448 mi.; # of Border Miles* 739 mi.
# of Lakes and Ponds and Acreage 80 / 231,774 ac.
# of Marsh or Wetlands ac./sq.mi. 19,500 ac. or _____ sq. mi.
# of Coast Miles _____ mi.
# of Estuary sq. mi. _____ sq. mi.

*Border Rivers:

Name/Mileage Mississippi/485 Name/Mileage St. Francis/47

Name/Mileage Missouri/178 Name/Mileage Des Moines/29

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

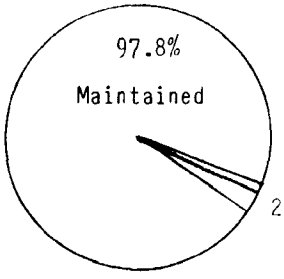
1. a. Miles Assessed: 18,448
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 267
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 35.5
   d. Miles Monitored: 3,827

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	17,973 mi.	81	394		18,448 mi.
	97.4%	0.5%	2.1%		100%
1982	18,055 mi.	51	342		18,448 mi.
	97.9%	0.3%	1.8%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	52	334
Miles Degraded:	15	0
Miles Maintained:	18,039	
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 236,013
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 15,756
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 217,413

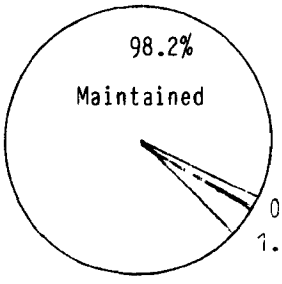
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	168,710 ac.	2,083	0	0	170,793 ac.
	98.8%	1.2%	0	0	100%
1982	230,714 ac.	5,299	0	0	236,013 ac.*
	97.8%	2.2%	0	0	100%

*Between 1972 and 1982 two new reservioirs were constructed, therefore total acreage increased.

3. Changes In and Within Use Support 1972 - 1982

By Percentage

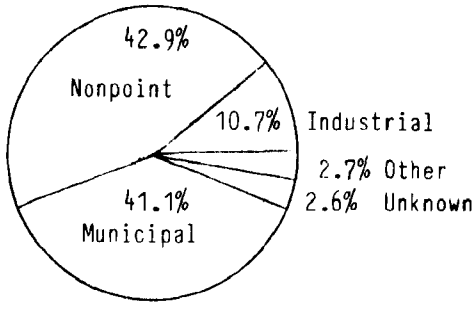


	Within Category	Change in Category
Acres Improved:		329
Acres Degraded:	3,945	
Acres Maintained:	231,739	
Unknown:		

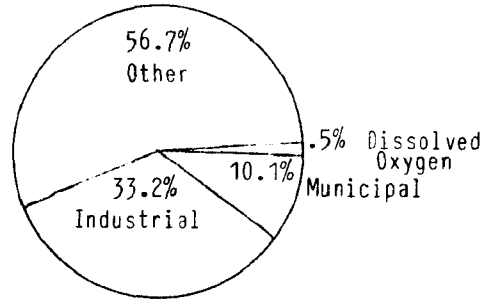
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

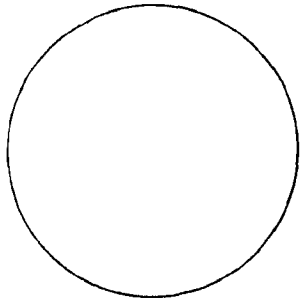
a. Streams and Rivers



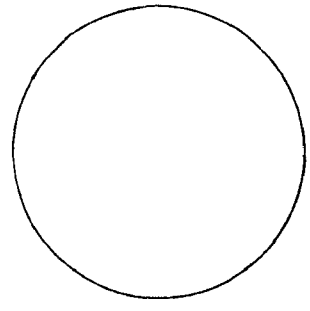
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X					X		
Industrial		X				X		solids	
Non-Point	X	X		X		X	X	sulfate	
Other (inc. natural)									

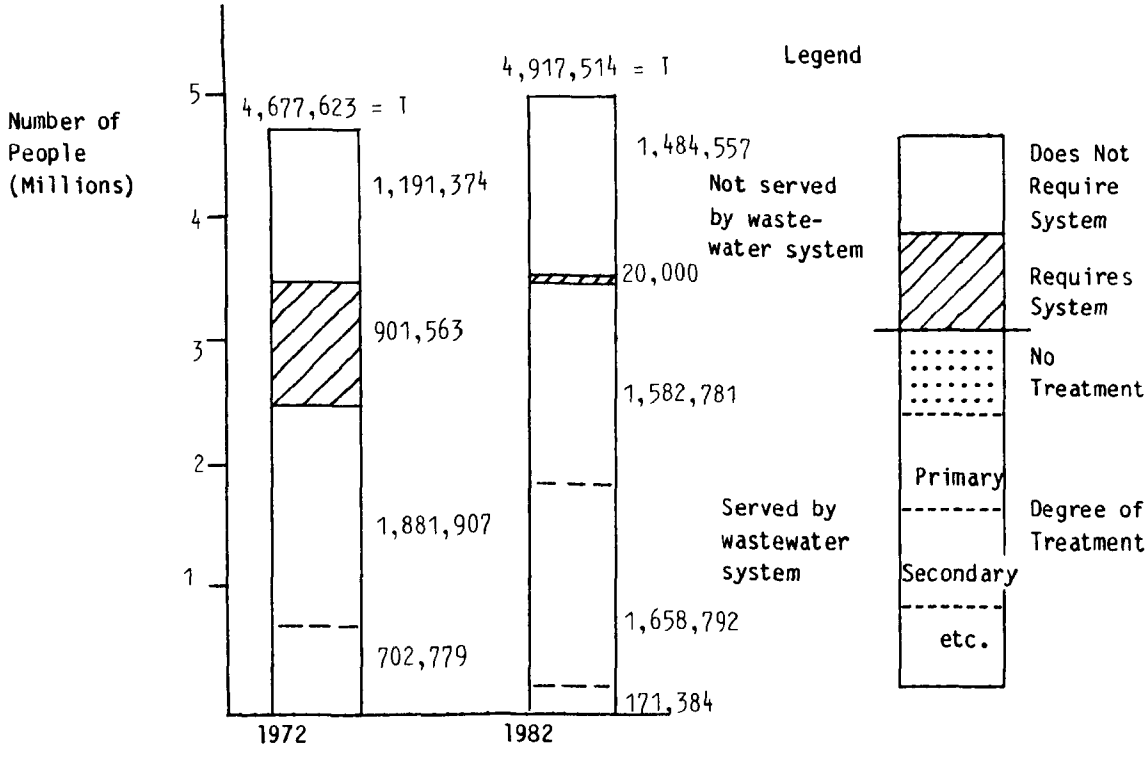
*Number of Stream/River Miles Affected by Toxics: 46
*Number of Lake/Reservoir Acres Affected by Toxics: None
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

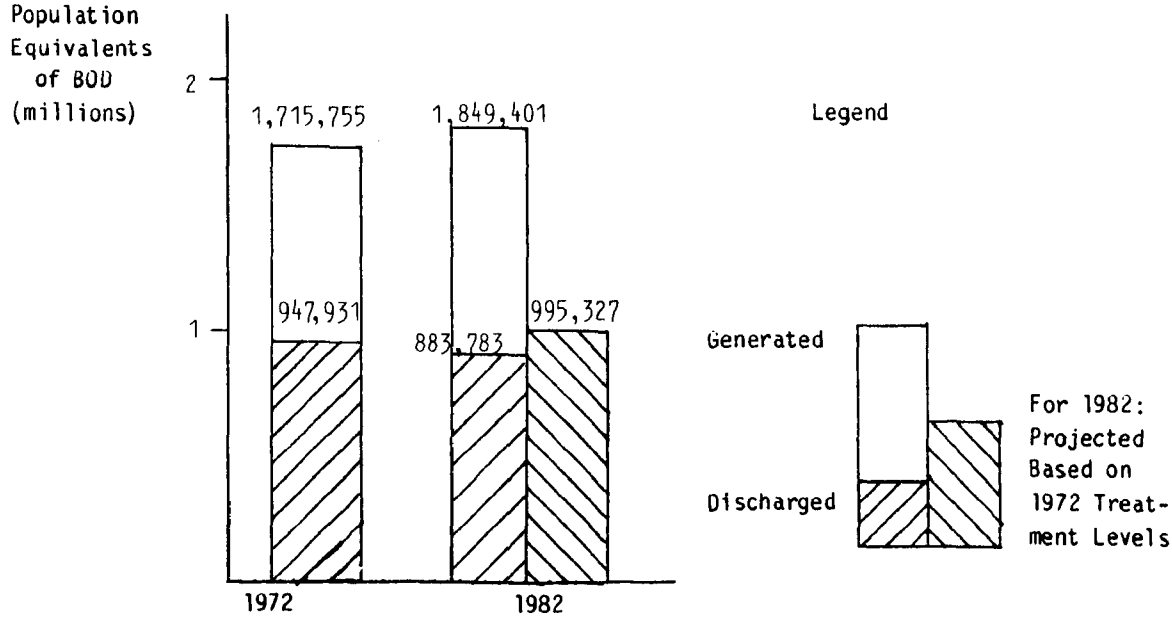
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

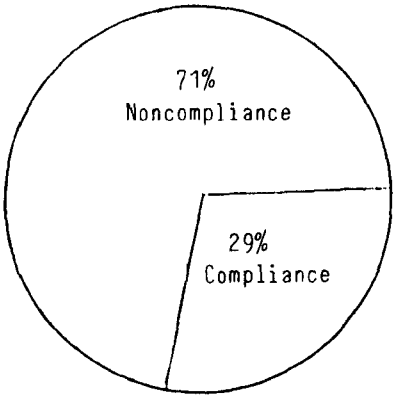
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	55	10	54	
Facilities Meeting 1982 Permit Requirements+	16	10	36	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	29%	100%	67%	684
Percentage of Flow For Which Requirements Met+	10%	100%	42%	
Facilities Needing Upgrading	39	10	18	

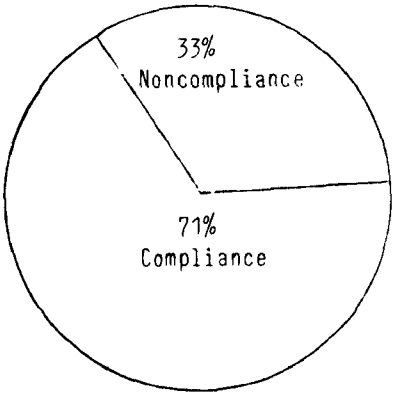
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

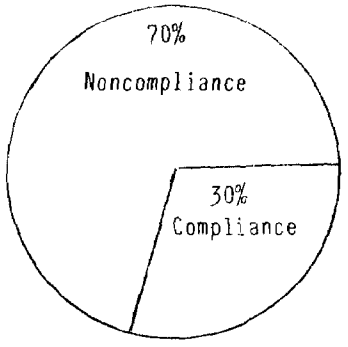
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	91		95	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	27		84	1,592
Percentage of Facilities for Which Requirements Being Met	30%		88%	
Percentage of Flow for Which Requirements Met+	11%		84%	

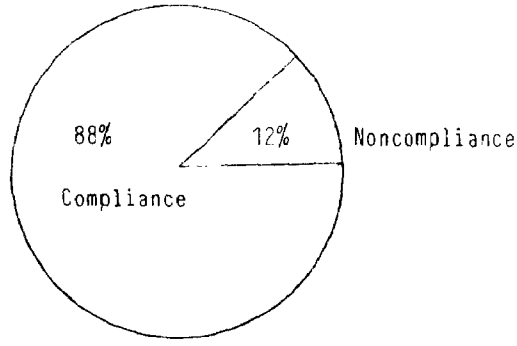
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The most significant sources of nonpoint pollution are Mining, Agriculture and Hydrologic Modification. Mining problems stem from removal of coal, zinc, lead and barite. For active coal mining, state regulations require a permit application (with a water management plan) to be submitted prior to mining. Permit applications must include a description of the reclamation plan and the number of acres in each land-use category. Permits are issued by the Missouri Land Reclamation Commission. For abandoned coal lands, the Federal Surface Mining Control Act of 1977 provides for reclamation. Section 401 provides for a severance tax (35¢ per ton in Missouri) to be used for reclamation and restoration of land and water resources affected by past coal mining activities. Approximately 110 miles of stream are affected by coal-mining.

Problems associated with removal of lead and zinc result during mine dewatering (natural seepage or intentional), and erosion of tailings piles. Problems may result from dissolved metals (Pb, Zn, Cd) in the water column, or physical presence of tailings in the substrate. Best Management Practices have been developed for the operations which have potential for stream pollution. Approximately 56 miles are impacted by lead and zinc mining.

Although agricultural erosion is more widespread than mining, it is less of a priority problem in the state. The greatest problem is sediment transport into ponds, lakes and reservoirs, effectively reducing the life of water supply sources, and recreational waters. A voluntary approach of best management practice adoption should eventually slow down the problem. Missouri has a state cost-share program to assist land owners.

Numerous northern Missouri streams are affected or destroyed annually by hydrographic modifications (channelization). Twenty-five miles of the East Fork Chariton River were replaced by a straight 15 mile pilot channel during 1979. Because of the increased gradient and inadequate channel capacity, heavy rates of bank erosion and very high levels of suspended solids have been found in the section of the river that contains the pilot channel. It would appear that permits undersection 401 (P.L. 95-217) could limit stream bank erosion from channelization activities. However, Missouri has refused certification of only a few projects to date, due to various reasons.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	M/L	N/A	S/L	N/A	M/L	N/A	I/L
Primary Pollutants	OxDe	SS,C,P		pH,M,SS		SS,O*		

*Habitat elimination

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Water Pollution Control Program (WPCP) enforcement efforts begin with a process of conference, conciliation and persuasion to gain voluntary compliance. This includes facility inspections, sample collection, phone calls and letters to the responsible party, issuance of Notices of Violation, and technical assistance to improve oeeration and maintenance of wastewater treatment facilities. If necessary, the WPCP begins administrative action which includes show-cause orders (which require the violator to appear in a hearing before the Clean Water Commission), permit denial, admissions letters, and abatement orders requiring specific action to eliminate discharge of pollutants. If this fails, the case can be referred to the State Attoryney General's office or the local county prosecutor for enforcement action. Civil or criminal charges (misdemeanor or felony) may be filed and can result in court ordered injunctive relief to prevent further violation, and require payment of penalty or imprisonment or both. Recently, WPCP has been using administrative negotiations (demands) in lieu of abatement orders or litigation. This is used especially for fish kills and requires corrective action and payment of damages and penalties.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

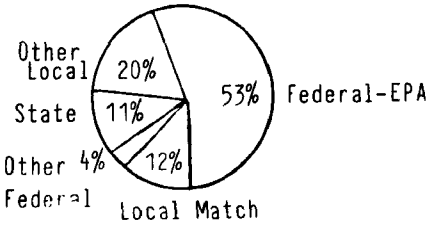
Total Number of Facilities:	29
Number of Pre-Administrative Actions:	23
Number of Administrative Actions:	6
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,432 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 766 Million
Other Federal:	$ 51
State:	$ 159
Local Match:	$ 174
Other Local:	$ 282

C. Program Activities

The Water Pollution Control Program consists of an administrative unit and six sections.

The Planning Section identifies water quality problems through review of data and environmental analyses. Problem areas, streams or basins are targeted for control strategies. Water quality standards and criteria, and a biennial water quality report are used to identify and display problems. When a facility is identified as causing a water quality violation, the Planning Section determines the most appropriate and effective method to solve the problem.

The Compliance/Review Section's responsibilities are: 1) to assess compliance with the Clean Water Law and related regulations, and 2) to initiate appropriate actions to foster or compel compliance in situations where the responsible party does not voluntarily do so.

The Program Support Section performs program-wide administrative and technical functions, including program planning and budgeting, management support, public relations, and data management.

The Technical Services Section provides assistance to grantees, consultants, regional office personnel and other parties to insure the proper planning, design, construction and operation of wastewater treatment facilities.

The Permits Section issues NPDES operating permits, letters of approval for no-discharge facilities, administers the pretreatment program, and provides technical assistance to all wastewater treatment facilities in the state.

The Grants Administration Section's primary responsibility is to administer several state and federal grant and loan programs which provide assistance to local governments in the construction of water and wastewater and stormwater control facilities.

The six Regional Offices are responsible for drafting all new and all reissued NPDES permits. They investigate all complaints of a water quality nature and attempt to resolve them. They are responsible for first-line contact with municipalities required to develop an industrial pretreatment program. The Regional Offices conduct compliance inspections of treatment facilities as required. They are also involved in construction grant project reviews, inspections and participation in the one-year operation and maintenance inspection.

The Laboratory Services Program collects and analyzes effluent samples and analyzes samples collected by the Regional Offices Program. The Laboratory is also responsible for sampling and analysis in support of the ambient monitoring program. They conduct on-site biological evaluations. The Laboratory Services Program supports each Regional Office through technical guidance and the conduct of the quality assurance program.

The Water Pollution Control Program coordinates with the Public Drinking Water Program regarding water and wastewater operator training and certification, and in locating sites for water supply intakes and wastewater discharges.

Legal support is provided by DEQ Counsel, the Attorney General's Office and local prosecuting attorneys.

The DNR Public Affairs Office provides assistance for meetings, news releases, public hearings, and informational requests.

The Division of Geology and Land Survey provides geological support.

VI. SITE-SPECIFIC SUCCESSES

THE CLEANUP OF WILSON CREEK

The new Springfield Southwest Wastewater Treatment Plant, designed to provide advanced treatment, has cured past ailments of Wilson Creek. The old wastewater treatment plant was overloaded and discharged effluent with high concentrations of nitrogen, phosphorus, oxygen-demanding wastes, and microorganisms. This discharge clouded the creek and consumed much of the oxygen needed by some species of aquatic life in order to survive.

The newly expanded wastewater treatment plant greatly eased Wilson Creek's condition. The new facility provided more advanced treatment than the old plant and, as a result, provided a five-fold reduction in the discharge of oxygen-demanding materials and a seven-fold reduction in suspended solids.

In 1966, the Missouri Water Pollution Board and Missouri Department of Conservation found a much degraded stream environment at Wilson Creek. The benthic invertebrate population consisted of very few pollution intolerant organisms and was mostly composed of midge fly larvae and sludge worms. Fish kills were frequent due to the low dissolved oxygen levels in the stream.

Today, a healthy, more balanced community of bottom-dwelling aquatic life may be found in Wilson Creek at the same location that was unfit for aquatic life fifteen years earlier. Species diversity has increased substantially and pollution-sensitive aquatic insects such as mayflies, caddisflies and stoneflies are common. Fishermen in Wilson Creek catch sunfish and large and smallmouth bass more frequently than ever before.

WATER QUALITY IMPROVEMENTS ON GROVE AND CENTER CREEK - JOPLIN, MISSOURI

The City of Joplin lies in the southwest corner of Missouri near the Kansas-Oklahoma border. Four miles to the east of Joplin, Grove Creek flows north into Center Creek, a stream which, in turn, flows from east to west past Joplin's northern tip.

By 1950, the dissolved fluorides, phosphorus, ammonia, and nitrate nitrogen in wastewaters discharged from an explosives plant and two fertilizer manufacturers into Grove Creek had seriously degraded the water quality of that stream and that portion of Center Creek immediately below the point where the two streams meet.

Nuisance algae growths from the nutrients in these polluted discharges, and sludge deposits, the byproducts of inadequate industrial waste treatment, clogged Grove Creek. Farmers openly complained about cattle which had died from drinking Center Creek's waters. Anglers fishing on Center Creek for sunfish and large and smallmouth bass noticed a marked drop in the number of these species. There was a fish kill in Center Creek in the fall of 1960. In August 1962, a toxic slug discharge from one fertilizer manufacturer caused another, severe fish kill on Center Creek just below the point where it meets Grove Creek. The plant was deluged with complaints from the citizens of Jasper County and the Missouri Conservation Commission.

Shortly after the State of Missouri established intrastate water quality standards, the fertilizer and explosives manufacturers indicated they could meet the standards and began immediately to construct anti-pollution factilities and make process modifications within their plants. The plants now place heavy emphasis on establishing high housekeeping levels, including eliminating all sources of leaks from processing equipment.

Nuisance algae and sludge deposits no longer foul Grove Creek, and fish kills no longer plague Center Creek. Today, fishermen on Center Creek are catching sunfish and large and smallmouth bass in far greater numbers than before and catching them, moreover, in areas along the creek where none were to be found 20 years ago.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Historically, the major water pollution problem in Missouri has been from publicly owned wastewater treatment plants, particularly those located in headwater areas of recreational streams. Although Missouri is a water rich state, the intrinsic high quality of many streams and lakes causes pollution to be quite apparent in some localized areas. The insufficiency of funds for construction of POTW's has been the greatest concern in areas where water protection is desired.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Water Pollution Control Program
Mo. Department of Natural Resources

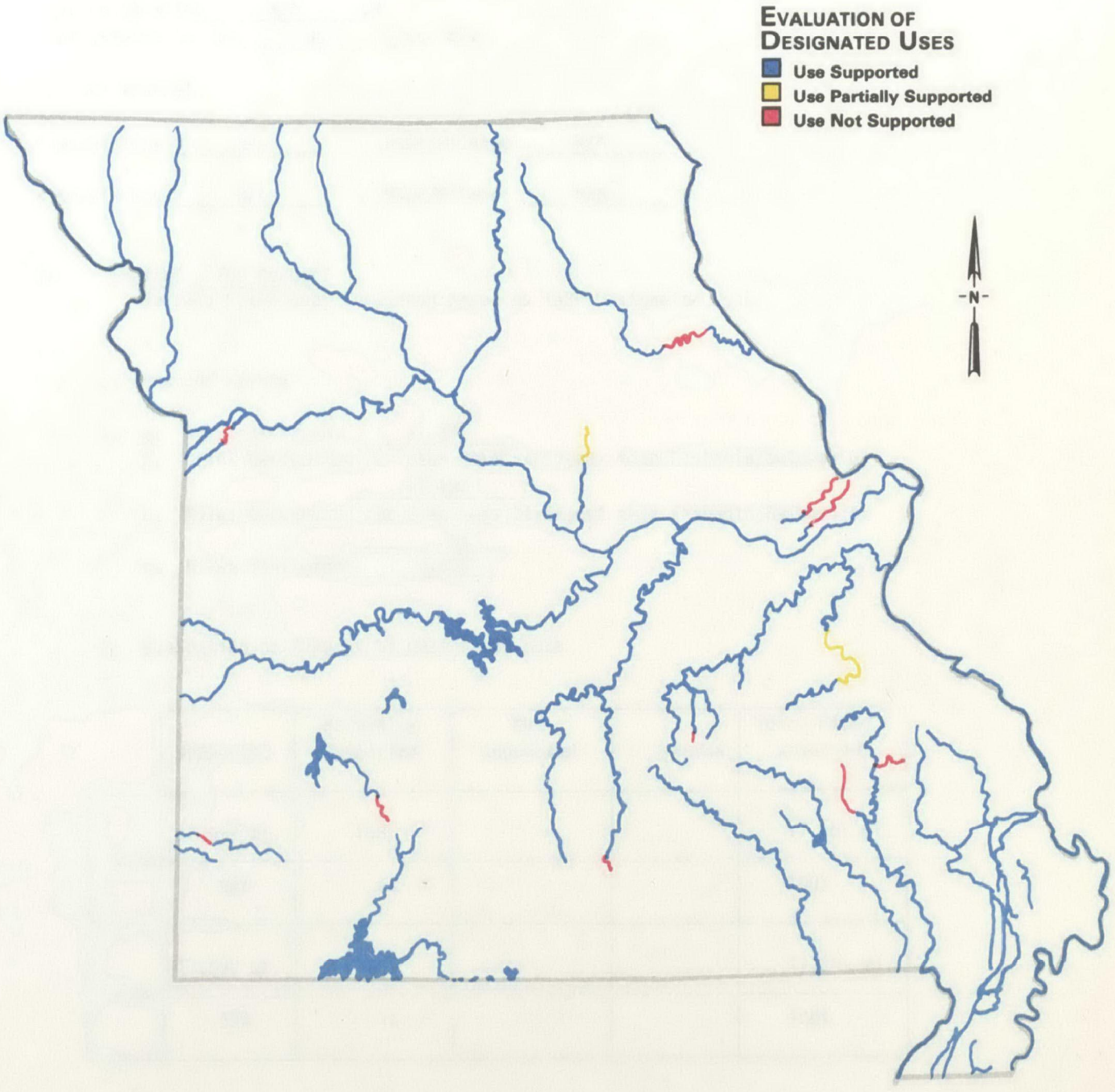
P. O. Box 1368
Jefferson City, MO 65102

CONTACT PERSON & PHONE #: Fred Lafser (314) 751-4422

DATE: July 20, 1983

MISSOURI
1972

MISSOURI
1982



State of Montana*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 694,409 1980 786,690
State Surface Area 147,045 sq. miles
# of River Systems/Basins 16
# of River and Stream Miles 19,168 mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage 4,018 / 756,000 ac.
# of Marsh or Wetlands ac./sq.mi. 187,400 ac. or 293 sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage N/A Name/Mileage N/A

Name/Mileage N/A Name/Mileage N/A

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

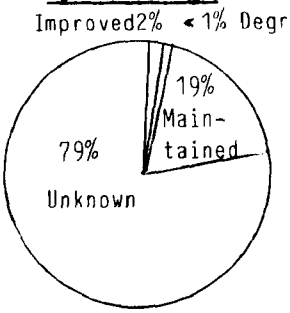
1. a. Miles Assessed: 17,251
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 17,187
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 64
   d. Miles Monitored: 3,663

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	17,099 mi.	152			17,251 mi.
	99%	1%			100%
1982	17,099 mi.	152			17,251 mi.
	99%	1%			100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	367	7
Miles Degraded:	40	0
Miles Maintained:	3,249	
Unknown:	13,588	

B. Lakes and Reservoirs

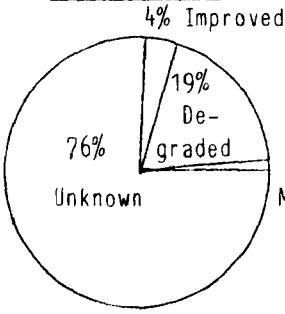
1. a. Acres Assessed: 651,763
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 651,763
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 581,516

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	651,763 ac.				651,763 ac.
	100%				100%
1982	651,763 ac.				651,763 ac.
	100%				100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

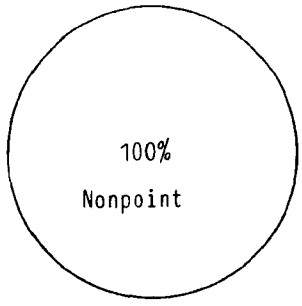


	Within Category	Change in Category
Acres Improved: (Koocausa)	26,989	0
Acres Degraded: (Flathead)	125,957	0
Acres Maintained: (Whitchsa,Evergreen)	7,002	
Unknown:	491,815	

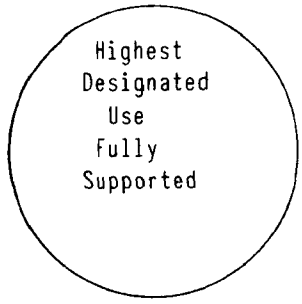
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage (drinking, culinary and food processing uses only)

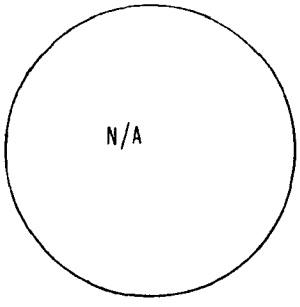
a. Streams and Rivers



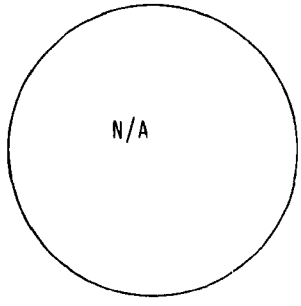
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern: (All designated uses)

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal			X						
Industrial									
Non-Point			X	X	X	Zn, Cu	X	TDS,TSS	TSS,Metals
Other (inc. natural)								LoFlo	

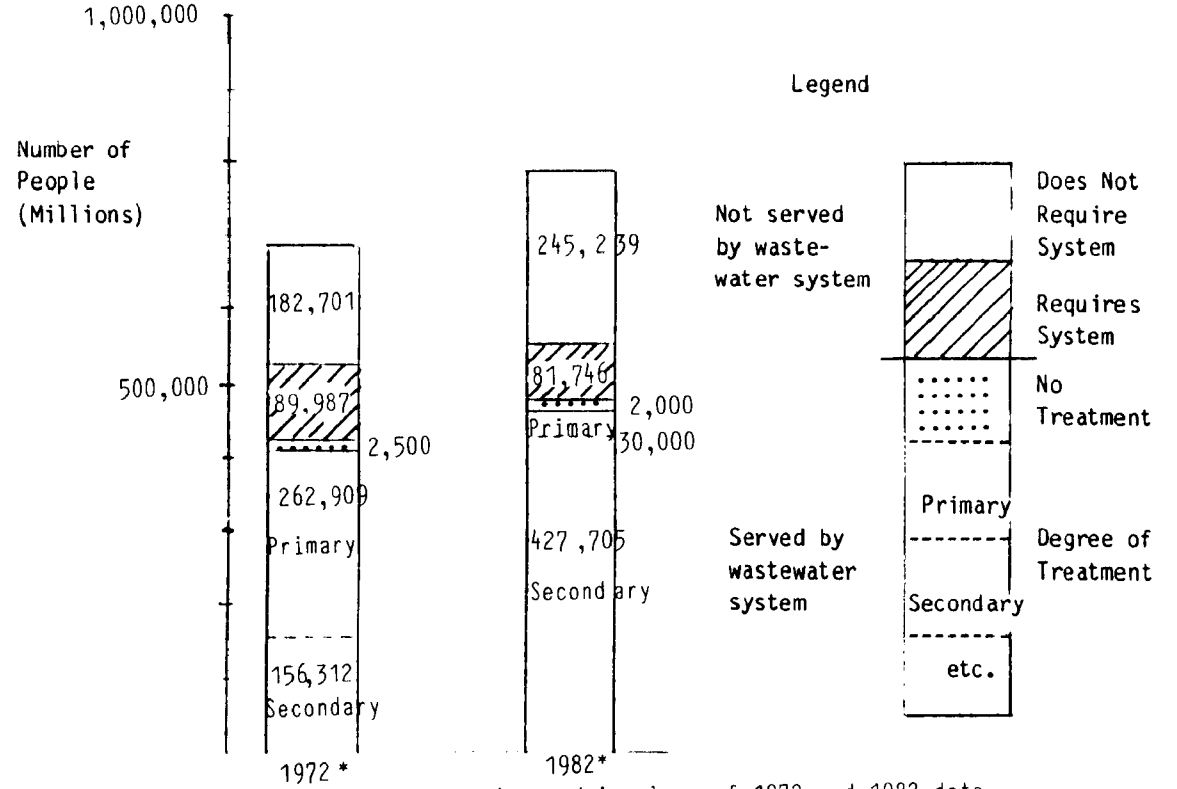
*Number of Stream/River Miles Affected by Toxics: 221
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

III. POINT SOURCES

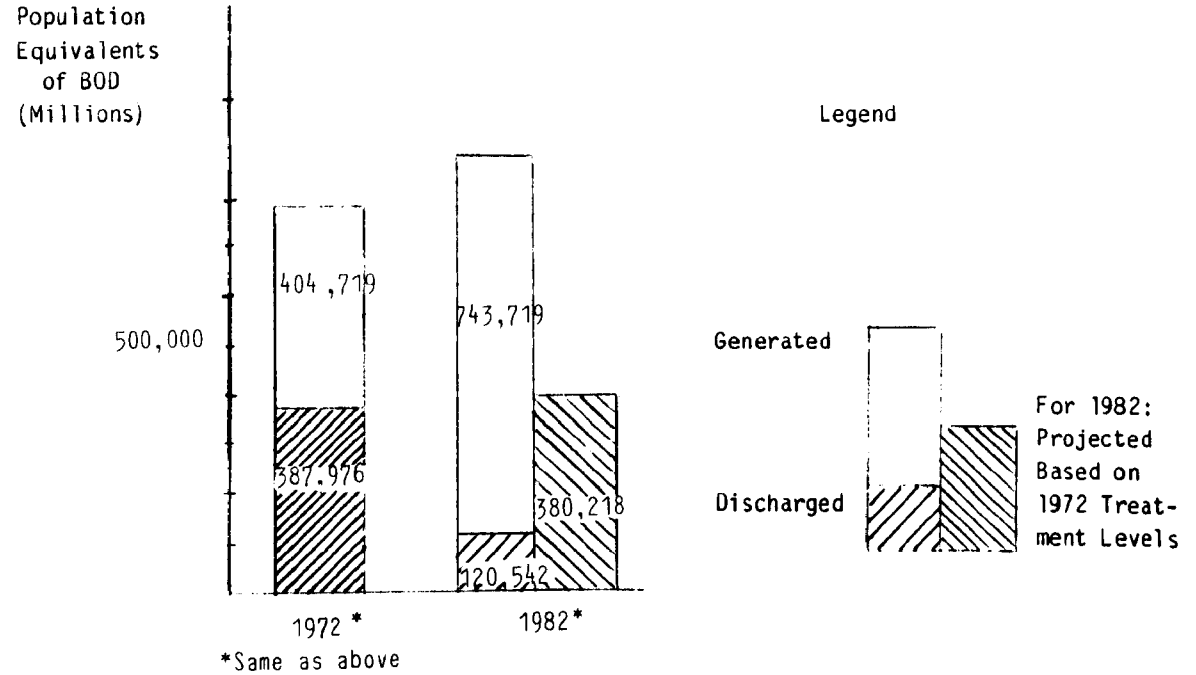
A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



*1970 and 1980 Data is used in place of 1972 and 1982 data

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Same as above

*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

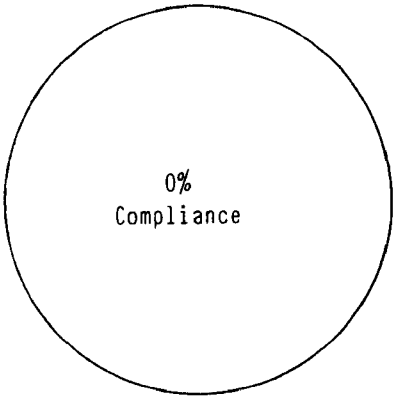
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	11	2	9
Facilities Meeting 1982 Permit Requirements+	0	2	9
Percentage of Facilities for Which Requirements Being Met	0	100%	100%
Percentage of Flow For Which Requirements Met+	0	100%	100%
Facilities Needing Upgrading	11	2	0

Total Permits in Effect in 1982: 135

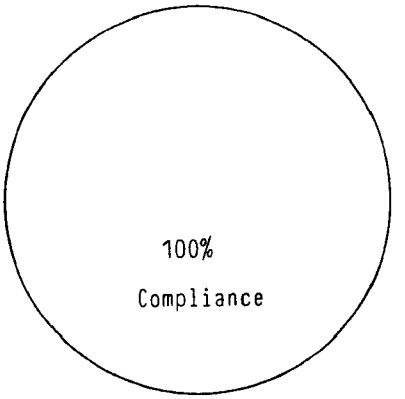
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

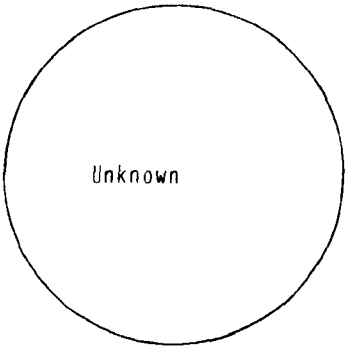
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	Unknown	1	20
Facilities Meeting 1982 Permit Requirements+	Unknown	1	17
Percentage of Facilities for Which Requirements Being Met	Unknown	100%	85%
Percentage of Flow for Which Requirements Met+	Unknown	100%	44%

Total Permits in Effect in 1982: 275

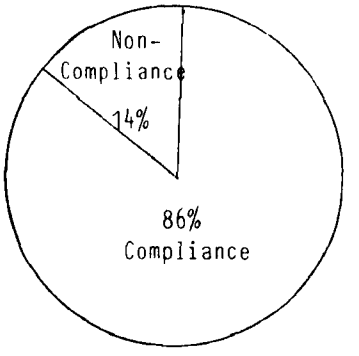
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Montana's major non-point source problems are sediment, salts and low flows from agriculture, metals, acid drainage and sediment from mining, and sediment from forest practices. Over 2,500 miles of streams have been degraded by sediment, 1,400 miles by salts and 800 miles by excess water withdrawals for irrigation. Over 400,000 acres of land have been lost from production due to agricultural salinity, most of it dryland salinity (saline seep) in eastern Montana where several local and shallow groundwater aquifers have been salinized. Abandoned hardrock mines have polluted about 300 stream miles with heavy metals. A recent flurry of placer mining and oil and gas production has caused a number of localized sediment and salt problems. Roading and over harvest of timber have caused hydrologic instability and sedimentation in many streams in the forested western one-third of the state.

On non-federal lands, Montana has a nonregulatory agricultural non-point source water quality management program administered by county soil and water conservation districts (CDs). The program centers on CD adoption of Soil Conservation Service (SCS) Engineering Standards and Specificatons and voluntary application of these by producers with financial assistance from the Agricultural Stabilization and Conservation Service (ASCS) cost-share program. For priority problems, identified by the Department of Health and Environmental Sciences (DHES), planning and implemention funds have been provided by the Montana-EPA 208 and 205(j) programs, the state-funded Water Development, Renewable Resource Development and Triangle Saline Seep programs, and the SCS watershed improvement program. Technical assistance is provided to CDs by DHES, SCS, the Department of Natural Resources and Conservation, the Department of Fish, Wildlife and Parks and by other agencies.

On federal lands, the DHES has signed cooperative agreements with the U.S. Forest Service and the Bureau of Land Management giving those agencies primary responsibility for non-point source water pollution control on lands under their jurisdiction. In cooperation with the Montana Department of State Lands, DHES conducts a program of education, permits, and inspections to control pollution from active hardrock and placer mines in western Montana. The two agencies also developed a multi-media training program to educate loggers and private forestland owners about timber harvest techniques that protect water quality. The state is looking to the Superfund and Abandoned Mine Land reclamation programs to remedy some of the more severe acid-mine drainage and metals toxicity problems stemming from abandoned coal and hardrock mines.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Oil & Gas*	Residuals
Severity & Extent	M/L	S/W	M/L	S/L	I/L	M/L	M/L	I/L
Primary Pollutants	SS,M	SS,Sal. LoFlo	SS	M, SS pH	T,SS	H	Sal.	Nut.

*Oil/Gas substituted for Salt. Int.
H = Heat/Thermal

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The state has broad authority under the Montana Water Quality Act to control pollution from both point and non-point sources. The Department of Health and Environmental Sciences generally attempts to resolve violations through pre-administrative action, then administrative action, and then judicial action, in that order. The severity of the violation as well as the enforcement history of the violator will determine the level of the initial enforcement action; in some cases enforcement may begin at the judicial level.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

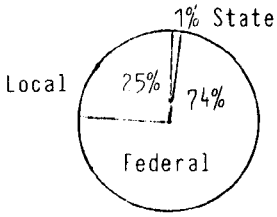
Total Number of Facilities:	3
Number of Pre-Administrative Actions:	7
Number of Administrative Actions:	0
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 138.6 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 103.12 Million
Other Federal:	$
State:	$ 1.60
Local Match:	$ 33.88
Other Local:	$

C. Program Activities

Montana's clean water program represents balance and close coordination among several component activities representing the different sections of the Federal Clean Water Act. Recent years have seen Montana receive delegation of most of the functions and responsibilities under that law. We have long operated under the premise that programs such as these could be best implemented and administered at the State level. In accordance with that philosophy we have received delegation in the areas of construction grants, safe drinking water and waste discharge permits. Our current clean water program has the following components:

Wastewater Discharge Permits. All discharges of pollutants to either surface or groundwaters are controlled by the issuance of waste discharge permits. The permit establishes effluent limits which will insure that water quality standards are met and beneficial uses protected. Performance is evaluated through review of self-monitoring data and periodic compliance monitoring.

Enforcement. The Montana Water Quality Act requires that the Department of Health and Environmental Sciences make an investigation of and report on any alleged violation of that law. Violations are documented and dealt with in an appropriate manner, ranging from a letter or telephone communication to civil action filed in district court.

Municipal Construction Grants. Financial assistance is made available to communities that are constructing new or expanded wastewater treatment facilities to improve the quality of discharged wastewaters. The program generally provides federal funds for 75 percent of the costs associated with such construction. Grants are made in accordance with a priority list that reflects the severity of the problem.

Water Quality Management. Water quality surveillance, monitoring or sampling and planning are an important part of our program. Monitoring consists of collection of baseline information on both chemical and biological quality as well as intensive studies to identify specific pollution sources. This information is essential to all other components of our program.

Technical Studies and Support. The impact of major activities (power plants, pipelines, dams, etc.) on the aquatic environment requires a significant commitment of time and effort. This portion of our program provides computer services, maintaining a file of water quality data, and modeling as necessary to predict environmental impacts of proposed projects.

Water and Wastewater Operator Certification. Montana law requires that persons in responsible charge of water and wastewater treatment facilities be certified. Operators receive training and are examined to insure competency. Approximately 1,100 operators have received such certification.

VI. SITE-SPECIFIC SUCCESSES

A. Silver Bow Creek/Upper Clark Fork River

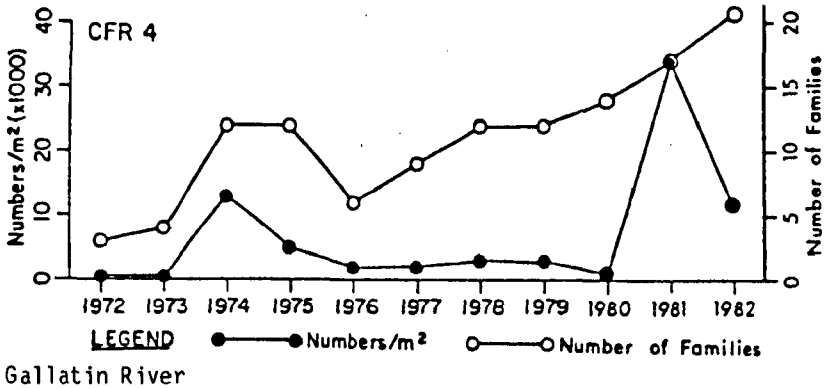
As late as 1969 the upper Clark Fork River ran red with acid mine drainage, mine tailings and untreated ore processing wastewater for 120 miles from Anaconda almost to Missoula, the cumulative effect of mining operations in the Butte mining district dating back to 1864. In addition, untreated domestic sewage and urban and industrial runoff added to the waste load of Silver Bow Creek and the Clark Fork River. The two streams were biological deserts, incapable of sustaining a sport fishery and associated aquatic life.

In 1954, three settling ponds (Warm Springs Treatment Ponds) were built near where Silver Bow Creek enters the Clark Fork River. With the addition of lime, these ponds neutralized the acid water of Silver Bow Creek and permitted flocculation and precipitation of dissolved metals, thereby significantly improving the water quality of the Clark Fork River. But there were occasional upsets, the last major one occurring in 1969.

In 1970 the City of Butte, which had been discharging untreated domestic wastewater into Silver Bow Creek, built a secondary wastewater treatment plant. In 1975 the City started applying the sludge from its new treatment plant on the land and stopped discharging it to Silver Bow Creek.

In 1972 and 1975, the Anaconda Company installed treatment systems at their Butte operation that reduced the flow and contaminant loads to the Warm Springs Ponds. Between 1980 and 1983, the Company phased out all operations at Butte and Anaconda, further reducing flows and contaminant loads to the ponds.

Although the two streams, still suffer residual effects of extensive tailings deposits and from storm water runoff from abandoned mining operations in Butte and Anaconda, they have recovered to the point where fish food organisms can now live in Silver Bow Creek and a productive trout fishery has become established in the upper Clark Fork River. Invertebrate monitoring data collected by the Anaconda Company at the headwaters of the Clark Fork River, which are presented below, show that much of this recovery has occurred during the last ten years.



B. East Gallatin River

Before 1971 there was a lack of trout reproduction and severely depressed trout populations in the East Gallatin River for several miles below the Bozeman primary wastewater effluent. These problems were ascribed to ammonia toxicity, residual chlorine and particles of organic sediment that accumulated on the river bottom. In 1971 a new treatment plant went into operation that provided secondary treatment to about half the wastewater flow. Pollutant loads to the river were further reduced in 1975 and 1977 when several large sewer leaks were repaired. Major additions to the Bozeman treatment plant, completed in 1982, provided secondary treatment to the entire wastewater flow plus ammonia removal in a series of infiltration-percolation cells. Preliminary data from instream biological studies give promise of full recovery to the point that the East Gallatin River may rival the trout producing capacity of sister Blue Ribbon trout streams in the upper Missouri River basin of Montana.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

While the Department of Health and Environmental Sciences has been concerned with a variety of problems in this time period, available resources significantly limited our ability to provide special attention to each concern. Several years ago the Department identified protection of groundwater quality as an area of concern that, due to its importance, could not be ignored. Eventually the Water Quality Bureau developed and is currently implementing a groundwater pollution control program.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_____ - Groundwater resource quality protection or supply assurance.

_X_ - Identification and control of toxic pollutants from industrial and non-point sources.

_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_X_ - Pollution arising from abandoned industrial and/or mining facilities.

While significant progress in water pollution control has been realized in past years, the battle is by no means over. As priority problems are dealt with the Water Quality Bureau moves on to other issues.

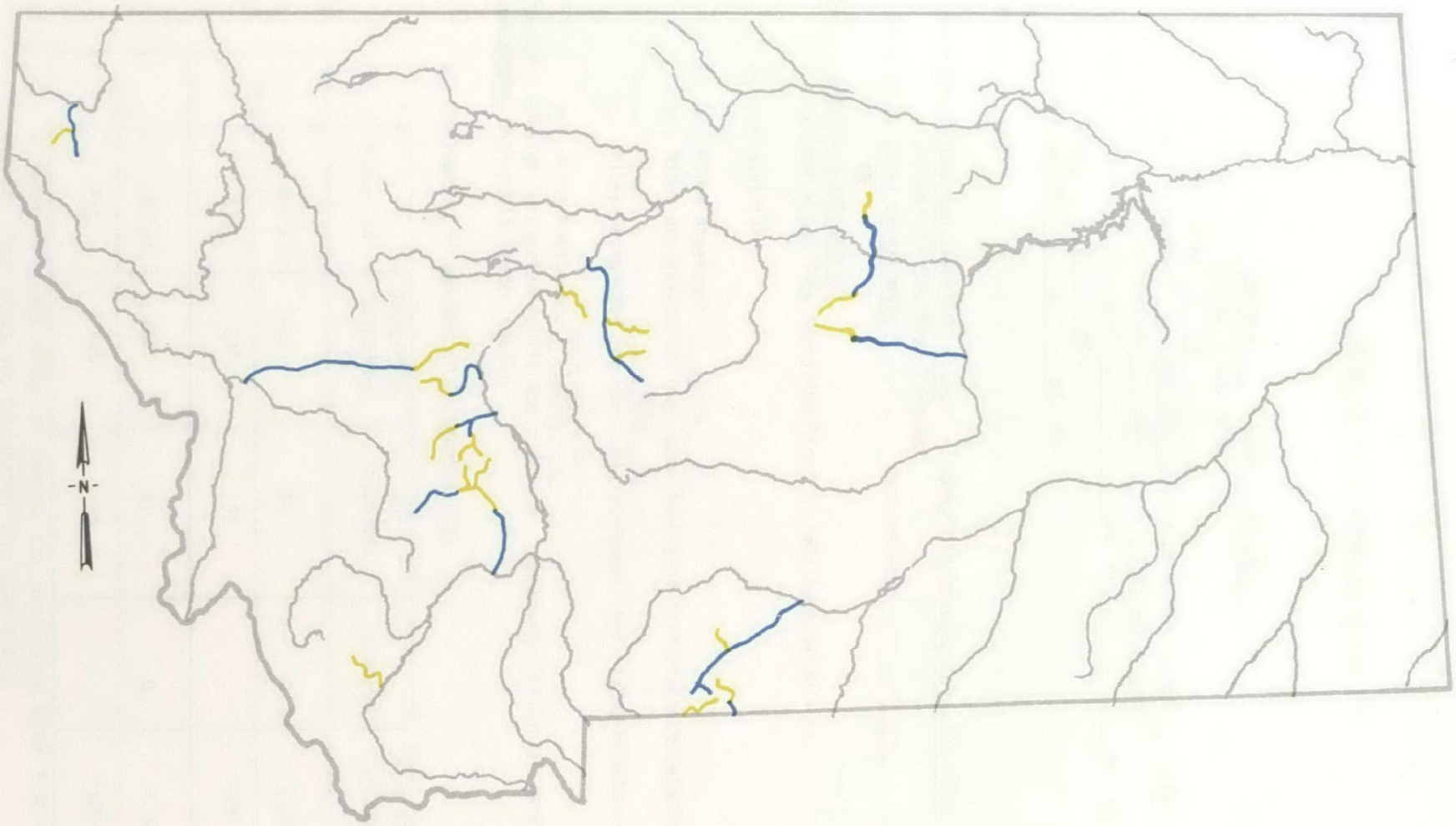
Although the previously discussed construction grants program has provided us with excellent wastewater treatment facilities, we are finding their effectiveness and efficiency somewhat limited by a lack of knowledge and/or ability on the part of operators. We have identified a need for increased operator assistance to protect the tremendous investment that we currently have in these treatment facilities. Program emphasis will shift as necessary to deal with this concern.

Another remaining problem is non-point source pollution. Sediment, salts and dewatering problems associated with agricultural activities continue to have a significant impact on water quality. Previous attempts to establish a control program, such as existed under the water quality management planning (Section 208) effort were not totally successful. Non-point source pollution control is complicated in Montana due to the vast acreage under agricultural production and the sensitivity of farmers and rachers to regulatory control in agricultural areas.

AGENCY PREPARING REPORT: Water Quality Bureau, Dept. Health and Environmental Sciences

CONTACT PERSON & PHONE #: Loren L. Bahls (406) 449-2406

DATE: October 13, 1983



MONTANA
1982

Evaluation of Designated Uses

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Nevada*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 488,738 1980 800,493
State Surface Area 110,540 sq. miles
# of River Systems/Basins 14
# of River and Stream Miles 1,122/7,500 mi.; # of Border Miles* 171 mi.
# of Lakes and Ponds and Acreage 384 / 425,400 ac.
# of Marsh or Wetlands ac./sq.mi. _____ ac. or _____ sq. mi. included in above
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage Colorado River/150 miles Including Lakes Mead & Mohave
Name/Mileage Lake Tahoe/20 miles
Name/Mileage Topaz Lake/1 mile
Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 1,325
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 785*
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 1,019

*Denotes mileage designated Public Water Supply. Generally, Fishable, Swimmable provides greater protection than public water supply.

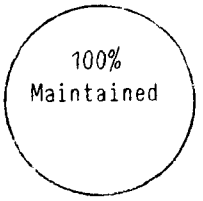
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	807 mi.	458	60	0	1,325 mi.
	61%	34%	5%		100%
1982	807 mi.	458	60	0	1,325 mi.
	61%	34%	5%		100%

NOTE: (1) A total of 4,909 miles of stream are designated Fish & Wildlife or better. Zero miles are designated less than F & W.
(2) Most facilities impacting water quality are not/have not been on line long enough to change long term water quality.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	0	0
Miles Degraded:	0	0
Miles Maintained:	0	0
Unknown:	0	0

NO CHANGE: Most facilities impacting water quality have not been on line long enough (or not on line yet) to affect long term water quality.

B. Lakes and Reservoirs

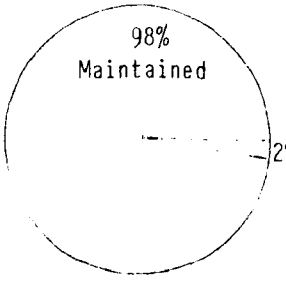
1. a. Acres Assessed: _____
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 140,812
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	256,400 ac.	14,800	5,000	0	276,200 ac.
	93%	5%	2%	0%	100%
1982	256,400 ac.	19,800	0	0	276,200 ac.
	93%	7%	0%	0%	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

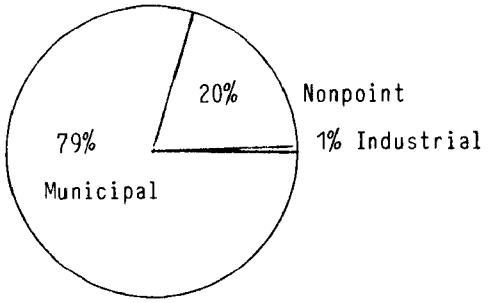


	Within Category	Change in Category
Acres Improved:	0	5,000
Acres Degraded:	0	0
Acres Maintained:	256,400	
Unknown:		

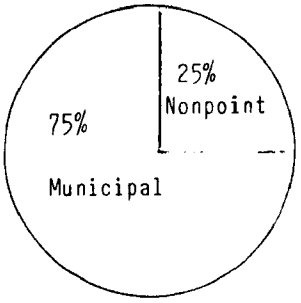
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

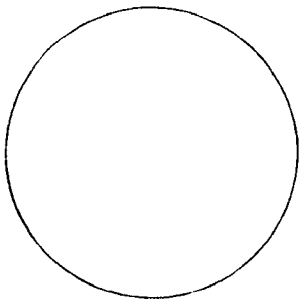
a. Streams and Rivers



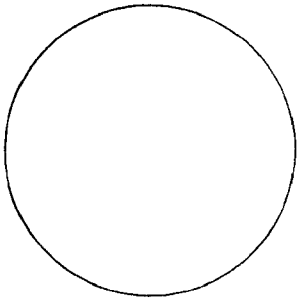
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X						Nut.
Industrial						X**			Toxics
Non-Point			X				X		Turb.
Other (inc. natural)					X				Temp/Flow

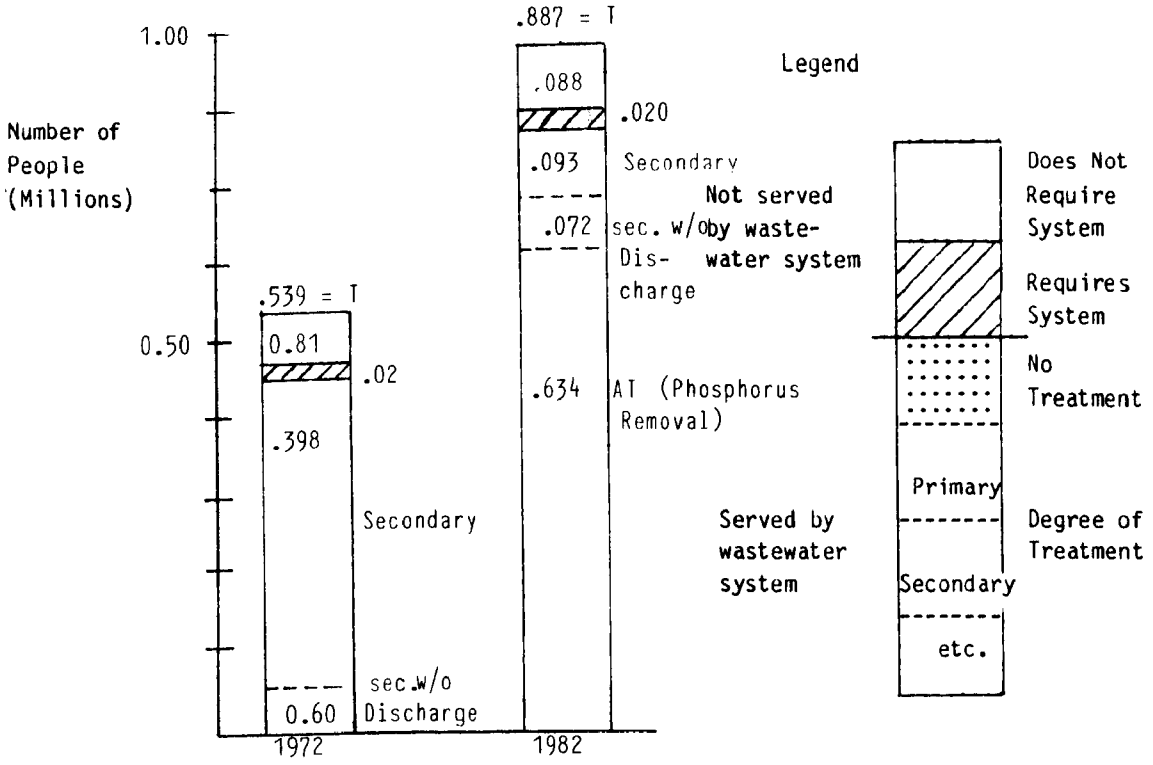
*Number of Stream/River Miles Affected by Toxics: 15
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

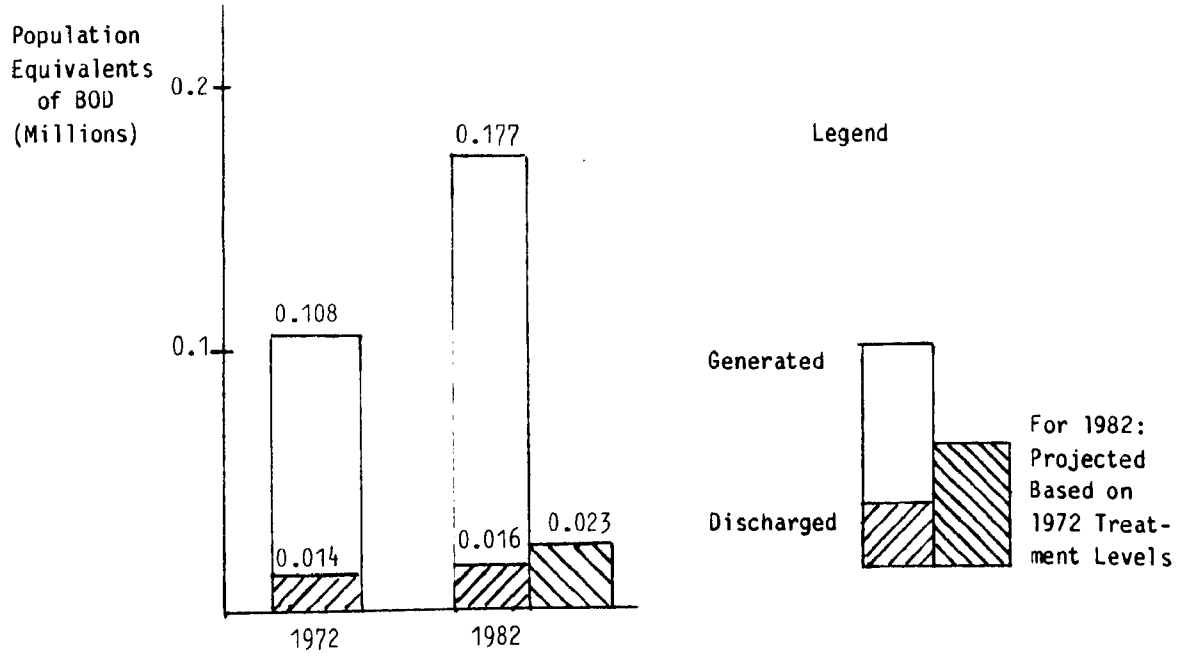
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	7	4	3
Facilities Meeting 1982 Permit Requirements+	0	4**	2
Percentage of Facilities for Which Requirements Being Met	0	100%	66%
Percentage of Flow For Which Requirements Met+	0	27%***	63%
Facilities Needing Upgrading	7	4	1

Total Permits in Effect in 1982: 16

+Includes "No-Discharge" Facilities

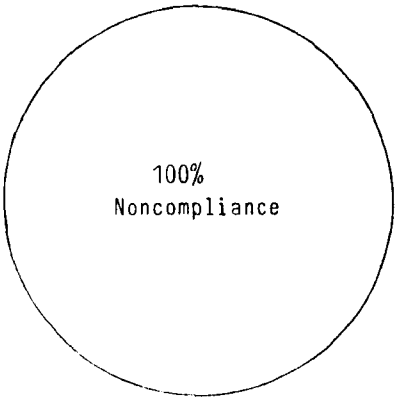
*Total Flow of 16 Muni Dischargers

**Reno Sparks achieved compliance December 1982

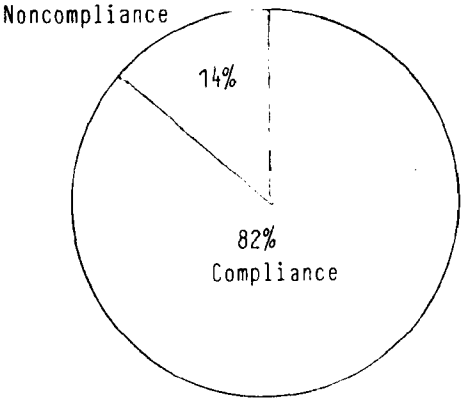
***w/o Reno, percentage would be 6%

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

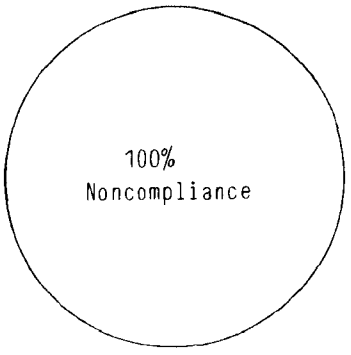
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	9	0	9
Facilities Meeting 1982 Permit Requirements+	0	0	9
Percentage of Facilities for Which Requirements Being Met	0	N/A	100%
Percentage of Flow for Which Requirements Met+	0	N/A	95%

Total Permits in Effect in 1982: 39

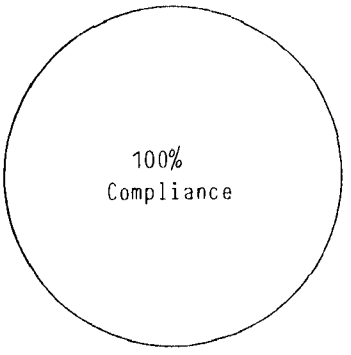
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Regulations for control of Water Pollution from diffuse sources (1980) control non-point source pollution.

The State Environmental Commission may prescribe Best Management Practices for:

1. Existing sources shown to significantly cause or add to water pollution in violation of a water quality standard.
2. New sources if controls are necessary to prevent the degradation of any water of high quality.

This program may be delegated to the county or city if requested. To date, both Washoe and Clark Counties and the Cities of Las Vegas and Reno have been delegated the program.

Problems are generally related to Agriculture, Hydrologic Modification and Urban runoff.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/L	I/L	S/L	M/L	S/L	N/A	I/L
Primary Pollutants	Nut. + SS	Nut.+ SS +T		M+SS	SS	LoFlo Temp		

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Nevada reviews discharge monitoring reports (DMRs) to determine compliance with effluent limits and permit monitoring requirements. Based upon these reviews, facility inspections are scheduled to verify violations and determine cause of noncompliance. Depending on the severity of the violation and the associated environmental and public health risks, the State initiates either pre-administrative, administrative, or judical action.

   Nevada conducts routine inspections of the major municipal and industrial dischargers on an annual basis (more frequent where conditions warrant). Half of these inspections involve sampling of the discharge.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

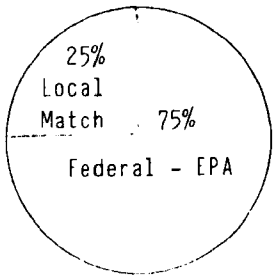
Total Number of Facilities:	3
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	3
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 118.6 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 88.9 Million
Other Federal:	$ Unknown
State:	$ 0
Local Match:	$ 29.7
Other Local:	$ 0

C. Program Activities

The Water Pollution Control Program is operated by the Department of Conservation and Natural Resources, Division of Environmental Protection. The major activities are:

1. Permitting - both NPDES and State Groundwater
2. Enforcement and Compliance
3. Water Quality Monitoring and Quality Assurance
4. Water Quality Planning
5. Water Quality Standards Setting
6. Emergency Response

Because resources are limited, Nevada has identified the most significant pollution problems and strategies to resolve them.

Consequently, the following areas have been determined to exhibit pollution problems of most immediate concern and thus will receive the major concentration of effort.

Problem Area	Major WQ Problems
Las Vegas Wash/Lake Mead	TDS, PO_4
Truckee River (below Reno)	PO_4, Cl, NH_3, N, Toxics
Carson River (incl. both forks)	PO_4, NO_3, Silt
Lake Lahontan	PO_4, DO, Turbidity

Those areas of a serious but secondary concern are:

Humboldt River	Temp., Siltation, Color, PO_4, Turbidity
Walker River	Silt, Turbidity, F. Coli
Walker Lake	TDS, PO_4
Lake Tahoe	Siltation, Nutrients
Topaz Lake	PO_4, Turbidity, DO

The implementation of the proposed sewerage projects is significant in meeting the 1985 goal of the Clean Water Act since the majority of the projects will be utilizing some form of land application. The State has identified the significant municipal dischargers and almost all are expected to terminate discharge by 1985.

The nonpoint source problems caused by existing on site disposal of wastewater will be resolved by implementation of sewerage projects eliminating on lot disposal. Strict enforcement of regulations for on site disposal and permitting of subsurface disposal systems will prevent such disposal methods for new development from causing ground water pollution or nonpoint source problems.

Agriculture and rangeland nonpoint sources are contributing the large sediment loads to waters of the State. Those nonpoint sources contributing nutrients, heavy metals and organic loads are urban drainage systems. The implementation of the State's nonpoint source control law and best management practices are necessary to achieve reductions of nonpoint source loads. These nonpoint source controls, coupled with point source controls, are necessary to achieve the goals of the Clean Water Act.

VI. SITE-SPECIFIC SUCCESSES

Basic Management Inc. (BMI), located in Henderson, Nevada, and comprised primarily of TIMET, Stauffer Chemical and Kerr McGee Chemical, have eliminated all process waste streams discharge to Las Vegas Wash, tributary to Lake Mead and the Colorado River.

Numerous wastewater facilities throughout the State have reduced their phosphorus discharges (or have gone to no discharge) to waters of the State. These are:

1. Reno Sparks Joint Wastewater Treatment Plant;
2. Clark County Sanitation District;
3. City of Las Vegas
4. Incline Village Gen. Improvement District;
5. Douglas County Sewer Improvement District #1
6. City of Wells; and
7. Town of Battle Mountain
8. Carson City
9. Minden Gardnerville GID
10. Alamo

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

-BMI process water discharges
-Las Vegas Bay degradation
-Truckee river degradation below Reno/Sparks
-Lake Tahoe degradation
-Lahontan Reservoir degradation

Part B. Major Remaining Problems:

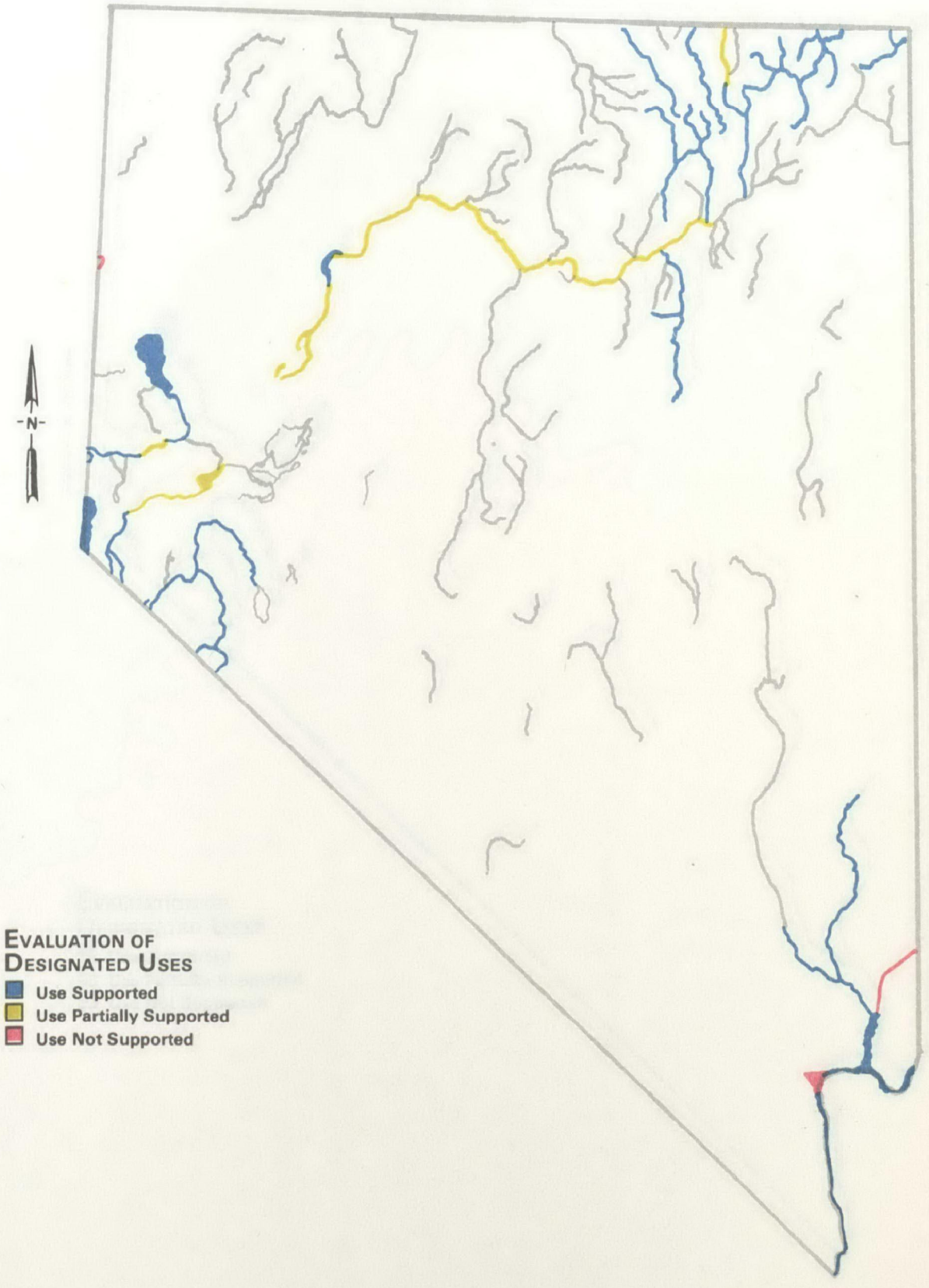
X	- Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
X	- Groundwater resource quality protection or supply assurance.
	- Identification and control of toxic pollutants from industrial and non-point sources.
X	- Municipal wastewater plant operation, maintenance, and rehabilitation.
X	- Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Division of Environmental Protection
Dept. of Natural Resources & Conservation

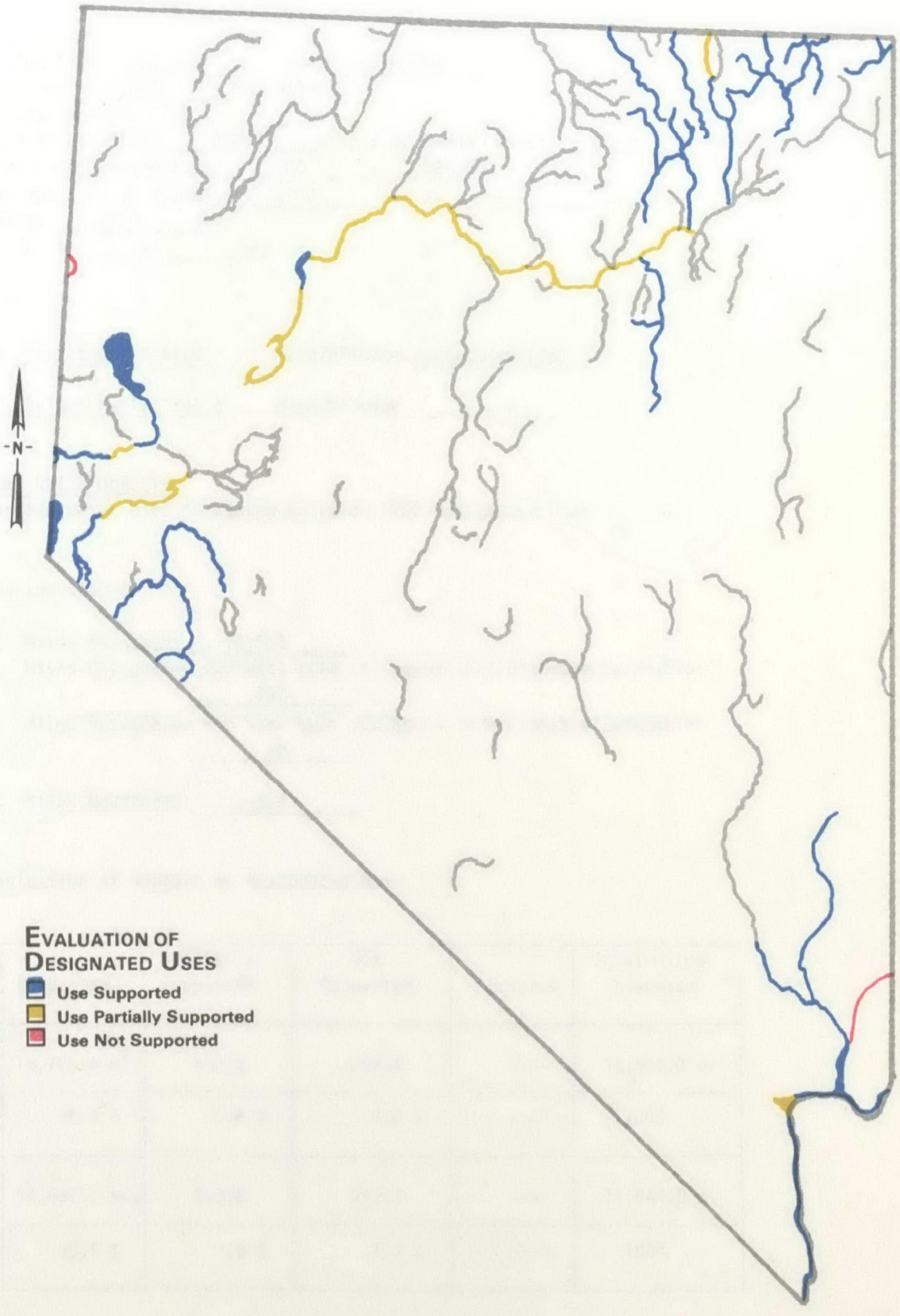
CONTACT PERSON & PHONE #: Michael Reed (702) 885-4670

DATE: September 16, 1983

NEVADA
1972


N
EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported

NEVADA
1982


N
EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported

State of New Hampshire*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 737,681 1980 918,629
State Surface Area 9,304 sq. miles
# of River Systems/Basins 5
# of River and Stream Miles 14,544 mi.; # of Border Miles* 309.5 mi.
# of Lakes and Ponds and Acreage 1,300 / 185,600 ac.
# of Marsh or Wetlands ac./sq.mi. 70,853 ac. or --- sq. mi.
# of Coast Miles 17.8 mi.
# of Estuary sq. mi. 27 sq. mi.

*Border Rivers:

Name/Mileage Piscataqua R/13.0 Name/Mileage Connecticut/260

Name/Mileage Salmon Falls R/36.5 Name/Mileage -----

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

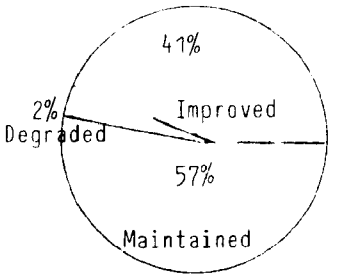
1. a. Miles Assessed: 14,544
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 667
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 52
   d. Miles Monitored: 1,322

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	13,728.6 mi.	113.0	702.4	----	14,544.0 mi.
	94.4 %	0.8 %	4.8 %	----	100%
1982	14,037.1 mi.	263.8	243.1	----	14,544.0 mi.
	96.5 %	1.8 %	1.7 %	----	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	209.5	334.3
Miles Degraded:	23.5	-----
Miles Maintained:	754.3	
Unknown:	-----	

B. Lakes and Reservoirs

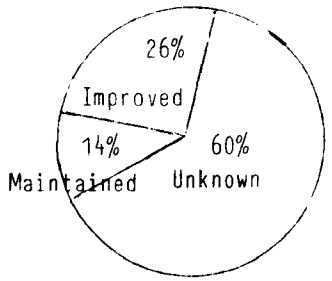
1. a. Acres Assessed: 185,600
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 20,108
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 20
   d. Acres Monitored: 7,291.5

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	148,275 ac.	27	11,198	26,100	185,600 ac.
	79.89 %	0.01 %	6.0	14.1	100%
1982	157,563 ac.	20,714	7,323	----	185,600 ac.
	84.9 %	11.2 %	3.9 %	----	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	1,506	5,752
Acres Degraded:	-----	-----
Acres Maintained:	3,967	
Unknown:	16,812	

C. Estuaries and/or Oceans

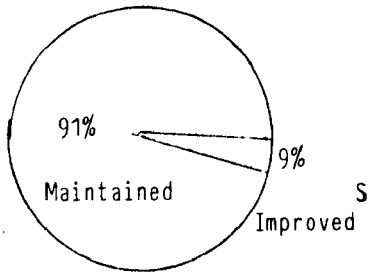
		Estuaries	Oceans
1. a.	Square Miles/Miles Assessed:	27.0	/ 17.8 miles
b.	Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/ 0
c.	Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	/ 0
d.	Sq. Mi./Miles Monitored:	27.0	/ 0

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	11.5 sq. mi.	14.6	.9	---	27.0 sq. mi.
	43 %	54 %	3 %	---	100%
1982	13.80 sq. mi.	12.7	0.5	---	27.0 sq. mi.
	51 %	47 %	2 %	---	100%

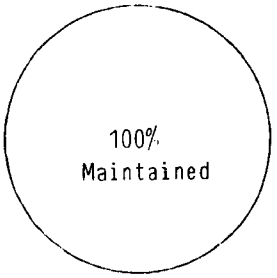
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	2.4	---
Sq.Mi.Degraded:	---	---
Sq.Mi.Maintained:	24.6	
Unknown:	---	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	---	---
Miles Degraded:	---	---
Miles Maintained:	17.8	
Unknown:	---	

D. Great Lakes N/A

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

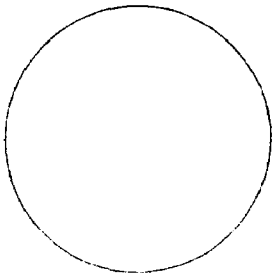
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

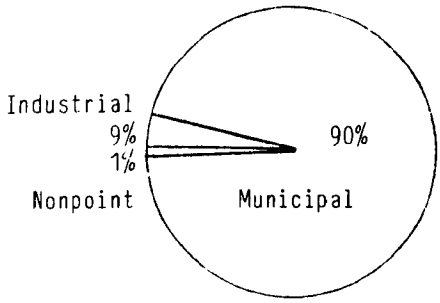


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

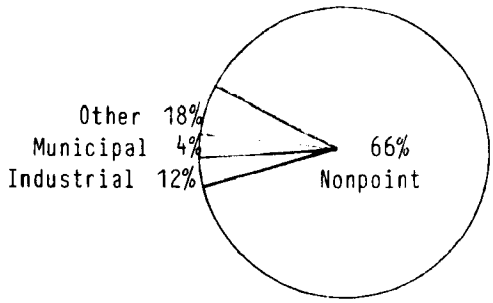
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

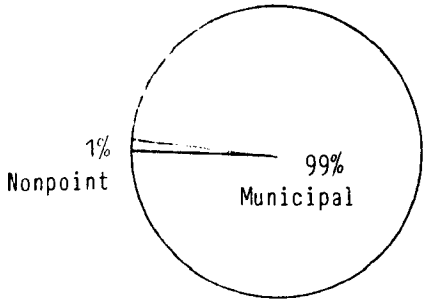
a. Streams and Rivers



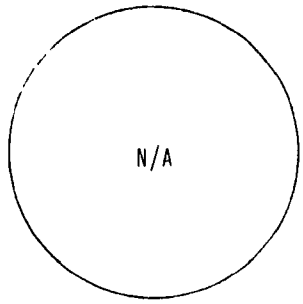
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X							Coli, D.O.
Industrial		X							
Non-Point	X		X				X		Nut, Turb.
Other (inc. natural)				X					

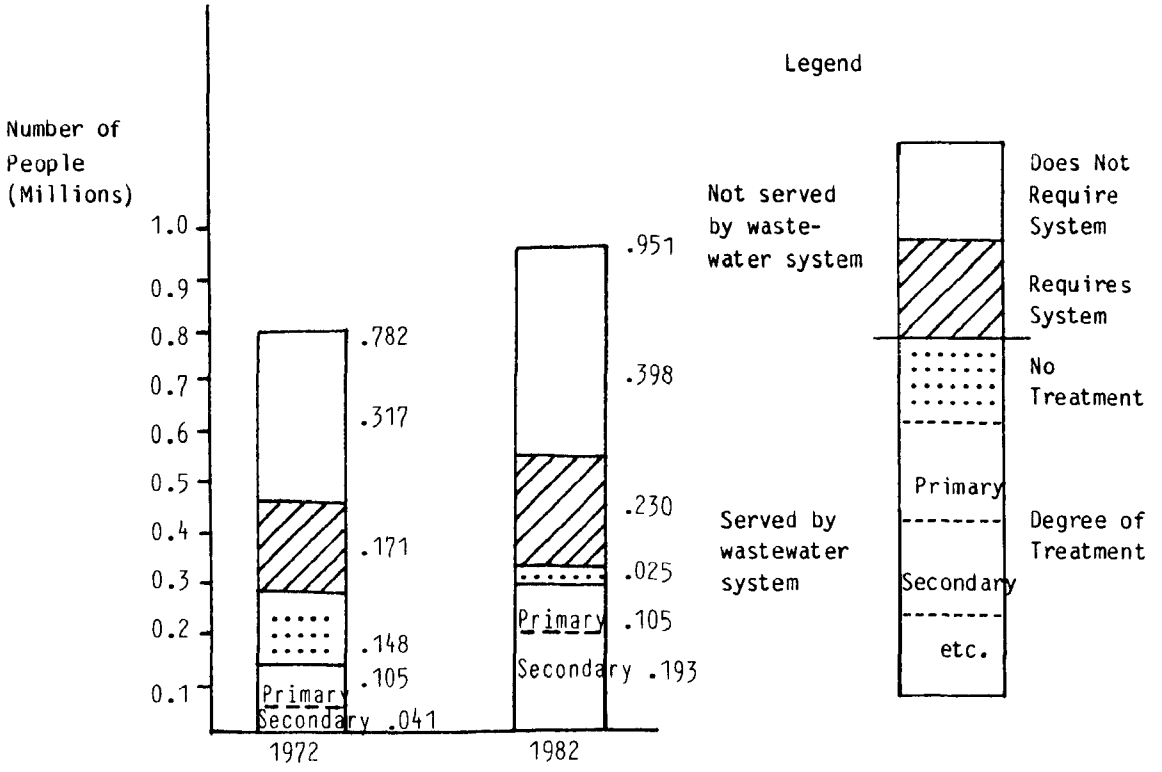
*Number of Stream/River Miles Affected by Toxics: Unknown
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: Unknown
*Number of Ocean or Great Lakes Mi. Affected by Toxics: Unknown

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

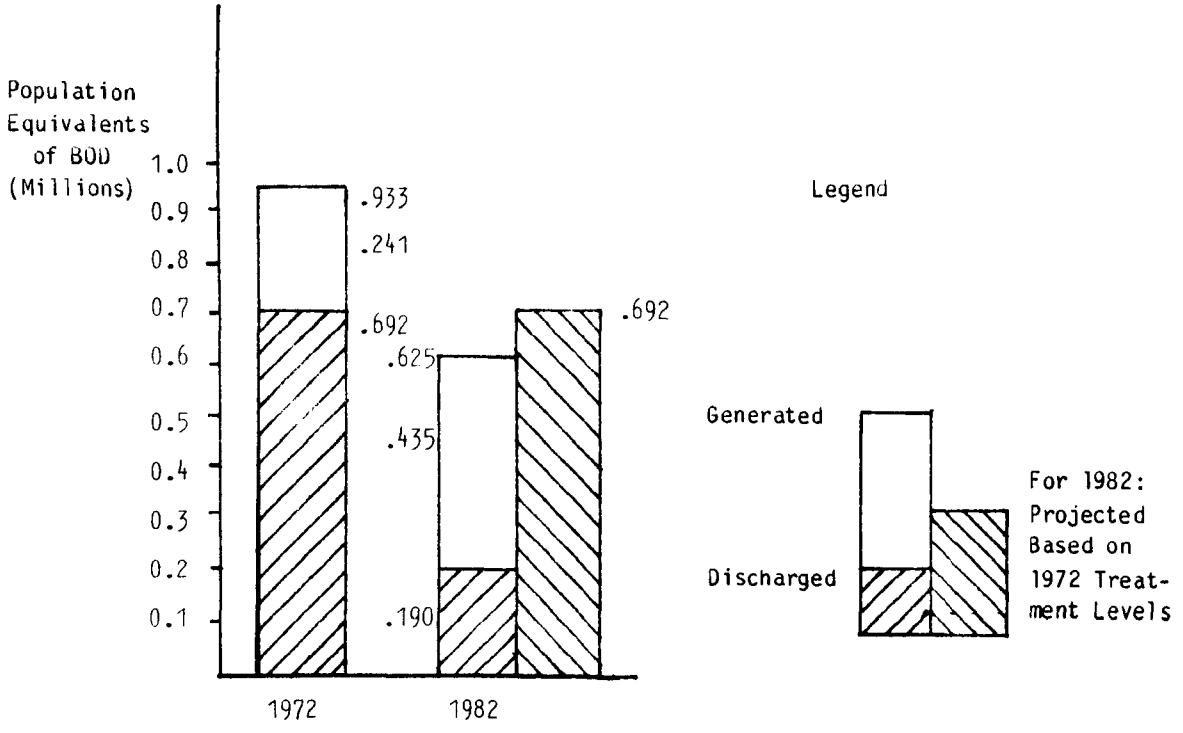
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

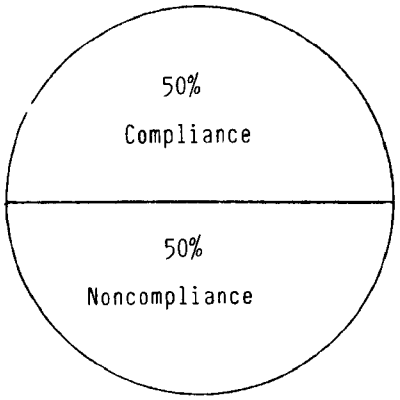
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	30	13	33
Facilities Meeting 1982 Permit Requirements+	15	12	31
Percentage of Facilities for Which Requirements Being Met	50%	92%	94%
Percentage of Flow For Which Requirements Met+	60%	97%	99%
Facilities Needing Upgrading	N/A	13	2

Total Permits in Effect in 1982 115

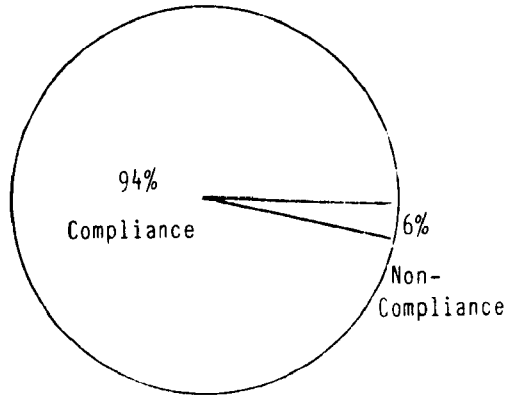
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

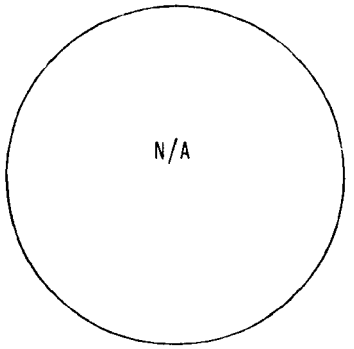
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0	3	19
Facilities Meeting 1982 Permit Requirements+	0	3	15
Percentage of Facilities for Which Requirements Being Met	N/A	100 %	82 %
Percentage of Flow for Which Requirements Met+	N/A	100 %	97 %

Total Permits in Effect in 1982 180

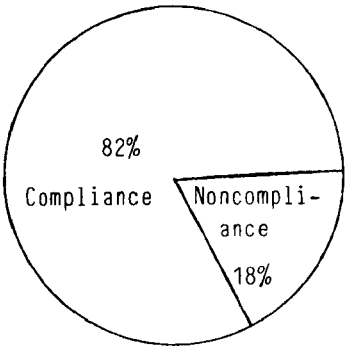
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Nonpoint Source (NPS) control in New Hampshire is concerned with the prevention of NPS Pollution. Of primary concern are timber harvesting, construction, agriculture and other sources which are episodic events. Every waterbody in New Hampshire is impacted by nonpoint sources to some degree. Some do experience extended impacts resulting in long-term loss of resource use. Lakes, as nutrient sinks, are most sensitive. High value river fishery areas are severely sensitive to turbidity and suspended solids. Coastal water clam beds are susceptible to bacteria and metal laden urban runoff (a national urban runoff study is presently being completed in which urban runoff control in coastal waters is a prime concern).

Strong regulatory controls have been initiated by the State. The intent of these controls is to, within available resources, limit the impact of altered land use. Little control of existing urban runoff is possible given the financial limitations (local, state and federal) placed on structural NPS control.

Best management practices for residuals (septage and sludge) disposition are being implemented. Guidelines and technical assistance, combined with groundwater regulations, provide a strong focus on emphasizing beneficial utilization rather than disposal per se.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M L	M L	M L	N.A.	M L	M L	N.A.	M L
Primary Pollutants	C,M,SS, Nut, T OxDe	C, Nut OxDe, P, SS, T	Nut Ox De, SS, T	---	Nut, OxDe SS, T	LoFlo		Nut, M, Ox De, SS, T

V. ADDITIONAL WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The Water Supply and Pollution Control Commission monitors performance by review of incoming reports, complaint responses and by field inspections. When non-compliance occurs the initial approach is usually to attempt to work with the operator of the facility to correct the violation. In the absence of a willingness to cooperate, an administrative order is issued; and, if further enforcement action is necessary, the matter is referred to the Attorney General for whatever legal action is deemed appropriate.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

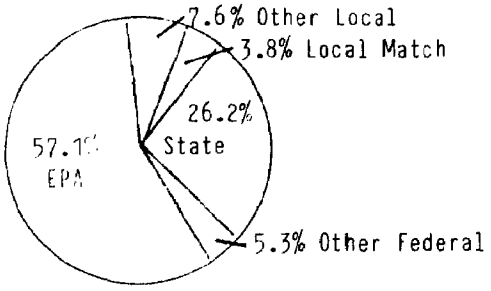
Total Number of Facilities:	7
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	4
Number of Judicial Actions:	3

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 534.9 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 305.4 Million
Other Federal:	$ 28.0*
State:	$ 140.3
Local Match:	$ 20.4
Other Local:	$ 40.8

*FmHA Only

C. Program Activities

New Hampshire's Clean Water Program is a multi-faceted approach to achieving its goal of improving and maintaining the quality of the state's waters.

Construction Grants are used to finance publicly-owned treatment works (POTW). Priority scheduling optimizes the use of available funds where the needs are greatest. POTW construction outside of the 201 program compliments it, particularly in the rapidly growing southern part of the state.

Permitting of municipal and industrial discharges is by both the Permits Branch of the Environmental Protection Agency's Region I and the Commission, with a close working relationship between them. The objective is to identify all discharges of wastewater in an effort to restore and maintain fishable/swimmable waters in the state. The Commission also requires groundwater permits for discharges which could potentially affect groundwater quality.

Enforcement of permit requirements involves the Commission, with review by EPA. Operating municipal and private sanitary wastewater facilities and industrial discharges are monitored for compliance.

Water Quality Monitoring determines whether compliance with permits and legislated water quality standards has been met. Careful study of specific surface waters, together with laboratory bioassay techniques, are used to assess current water quality.

Non-Point Source management includes control of sediment and erosion, urban runoff, subsurface waste disposal, and leachate from sludge and septage disposal through permitting and technical review.

These and other associated activities are focused on the goal of attaining and maintaining swimmable/fishable water quality.

VI. SITE-SPECIFIC SUCCESSES

Upgrading of Classification of Pemigewasset River

The Pemigewasset River, in north central New Hampshire, had been subject to a history of decline from a prime trout stream to a grossly polluted stream receiving untreated and partially treated effluent from four major industries and seven municipalities. A report published in 1966 noted that the "condition of the stream is generally worse (< Class C) than at the time of the earlier study (1958) due to population and industrial growth." Through the efforts of the public and local, state and federal officials, pollution of the "Pemi" has been essentially eliminated and it is now a productive and enjoyable river. On May 24, 1983, the Governor signed a new law which reclassified almost 12 miles of the "Pemi" from Class C to Class B to reflect the river's existing quality and to provide for future protection of this valuable aesthetic and economic resource.

Kezar Lake Restoration

Kezar Lake, a 180 acre water body located in Southwest New Hampshire, had an early history as an attractive recreation site for fishing, swimming and boating activities. Discharge of secondary effluent from the Town of New London to Lion Brook, tributary to Kezar, began in 1931. Over the years, this effluent carried high levels of the plant nutrient phosphorus to Kezar, resulting in massive algae blooms and fish kills by 1961 thus drastically reducing its recreational appeal. Tertiary treatment was added in 1970 and reduced the phosphorus, but problems persisted. A study was initiated in 1981 sponsored by the federal clean lakes program to assess Kezar and recommend restorative measures. Diversion of all effluent from New London to Sunapee out of the watershed occurred by 1982. Restoring Kezar by sealing the phosphorus rich bottom sediments with alum was recommended in the study and implemented during the summer of 1983. Initial results are very encouraging. Lake clarity increased dramatically to pre-pollution levels; phosphorus levels were cut in half and obnoxious algae were reduced. The need for additional treatment and watershed controls will be addressed in a follow-up monitoring program.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

New Hamshire's rapid population growth (25% in '70's) has aggravated those impacts on water quality related with growth, particularly in the southern half of the state. Dredging, filling, logging and other intrusions in wetlands are regulated by permit proceses of the WSPCC and the Wetlands Board. Prime wetlands may be designated at the community level and receive special protection. Sediment and erosion control plans must be reviewed and approved by WSPCC for developments disturbing 100,000 feet^2 or more. Disposal or utilization of septage as well as sludge has been inadequately addressed at the state level. Hazardous waste transportation and disposal are currently regulated by the Office of Waste Management, but discovery and clean up of pre-existing sites continue to be major problems which have received highest priority for the past two years. Development of a siting process for low level radioactive wastes remains before a legislative study committee. Oil spills have been cleaned up by WSPCC since 1979, and industrial discharges (NPDES) permits issued since '73 have achieved a significant improvement in effluent quality.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

Septage and sludge disposal (or, preferably, beneficial utilization) promise to be even more difficult to resolve in coming years. Monitoring of existing land disposal sites is needed.

Acid rain impacts upon aquatic systems are well documented, but reduction of emissions of acid rain precursors remains in the political arena. Of New Hampshire lakes and ponds studied in recent years, 84% have alkalinities of 10 or less. All remote, high-altitude trout ponds examined do. Aluminum, soluble in acidic water supplies, needs to be examined for possible public health effects.

Improved education and enforcement efforts are needed for greater compliance with permit processes for dredge, fill, logging, etc., in or on the border of surface waters and for significant alteration of terrain.

For disposal of low level radioactive wastes, possible interstate compacts or agreements as well as an approved siting process may be developed by the legislature, with WSPCC staff assistance.

Several problems remain which are related to the lack of economies of scale in smaller community wastewater treatment plants. Updated use ordinances are necessary to assure adequate pretreatment of industrial discharges into local POTW's.

Industry must identify and treat for those priority pollutants that are present in its wastewaters.

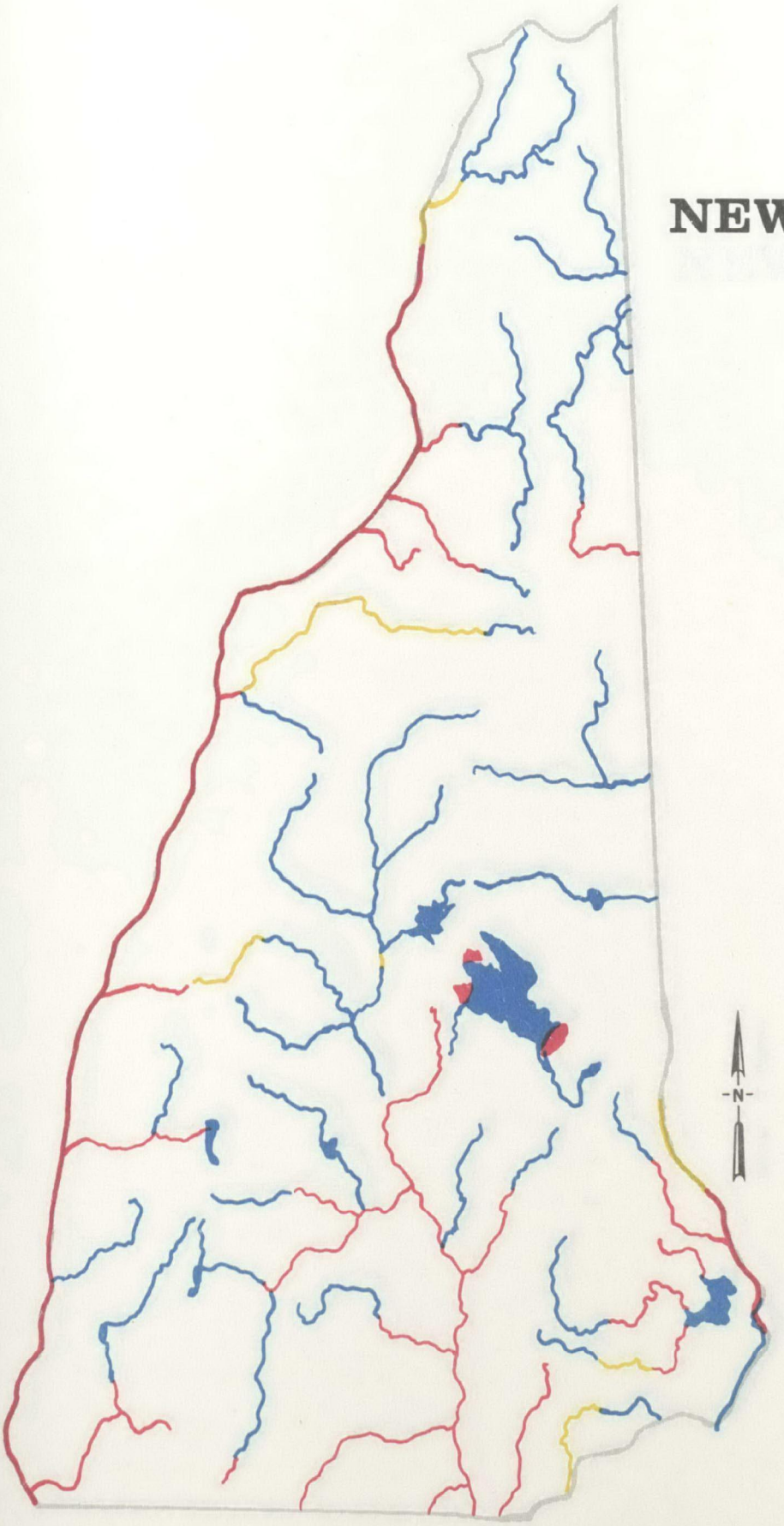
As fuel storage tanks age, the likelihood of leaks increases. Underground tanks, particularly, pose a difficult-to-detect pollution threat.

AGENCY PREPARING REPORT: New Hampshire Water Supply and Pollution Control Commission

CONTACT PERSON & PHONE #: Richard Flanders (603) 271-3398

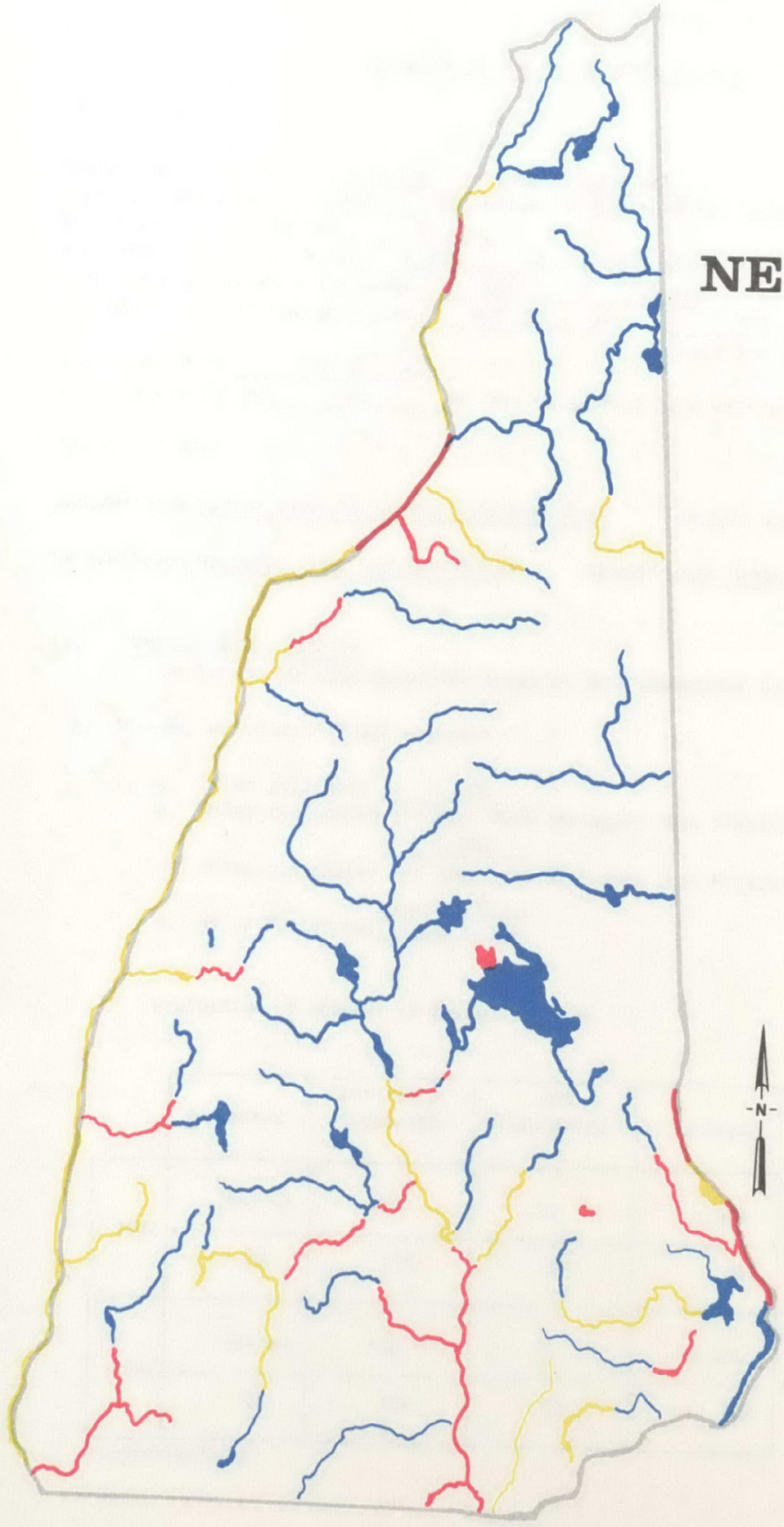
DATE: September 1, 1983

NEW HAMPSHIRE
1972



EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported



NEW HAMPSHIRE
1982

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

N

State of New Jersey*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 7,171,112 1980 7,364,823
State Surface Area 8,204 sq. miles (7,505 land sq. miles)
# of River Systems/Basins 5
# of River and Stream Miles 6,448 mi.; # of Border Miles* 439 mi.
# of Lakes and Ponds and Acreage 380 / 23,977 ac.
# of Marsh or Wetlands ac./sq.mi. 900,000 ac. or 1,400 sq. mi.
(fresh and saline wetlands)
# of Coast Miles 120 mi.
# of Estuary sq. mi. 420 sq. mi. (estuarine open waters)

*Border Rivers:

Name/Mileage Hudson River/Upper New York Bay/26 mi Name/Mileage Atlantic Ocean/127 mi

Name/Mileage Delaware River and Bay/253 mi Name/Mileage Arthur Kill/Raritan Bay/33 mi

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers (Fresh waters)*

1. a. Miles Assessed: 6,100
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,300
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 1,030 miles

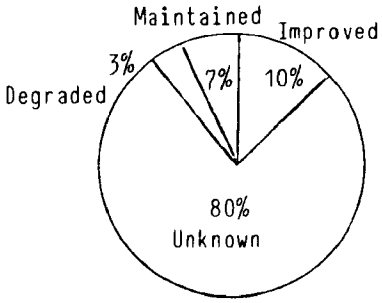
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	235 mi.	770	110	4,985	6,100 mi.
	4%	13%	2%	81%	100%
1982	365 mi.	640	95	5,000	6,100 mi.
	6%	10%	2%	82%	100%

*Approximations

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	400	150
Miles Degraded:	100	50
Miles Maintained:	450	
Unknown:	5,000	

B. Lakes and Reservoirs

1. a. Acres Assessed: 18,923
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 488
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 5,728

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.			18,923	18,923 ac.
				100%	100%
1982	13,593 ac.	3,788	1,542	0	18,923 ac.
	72%	20%	8%	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

Not Available

C. Estuaries and/or Oceans*

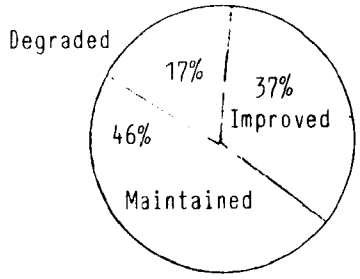
	Estuaries	Oceans
1. a. Square Miles/Miles Assessed:	1,225 sq. mi. /	
b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	5 sq. mi. /	
c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	450 sq. mi. /	
d. Sq. Mi./Miles Monitored:	1,100 sq. mi. /	

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	762 sq. mi.	83	380	0	1,225 sq. mi.
	62%	7%	31%	0	100%
1982	772 sq. mi.	162	291	0	1,225 sq. mi.
	63%	13%	24%	0	100%

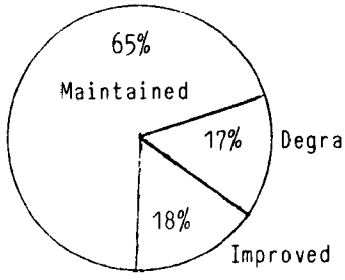
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	200	80
Sq.Mi.Degraded:	100	30
Sq.Mi.Maintained:	350	
Unknown:	0	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	50	31
Miles Degraded:	25	50
Miles Maintained:	285	
Unknown:	0	

*Approximations

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

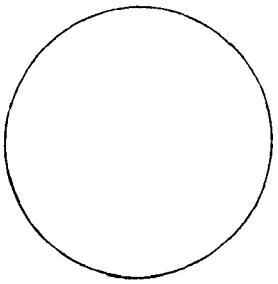
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

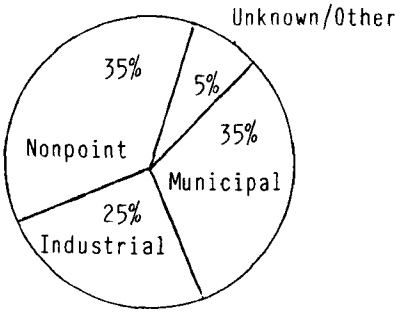


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

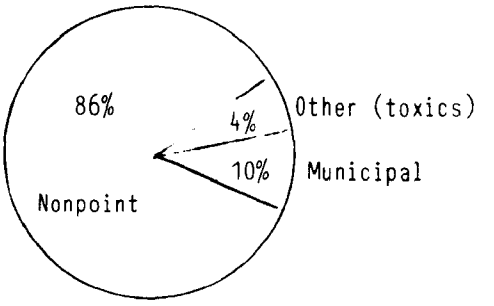
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

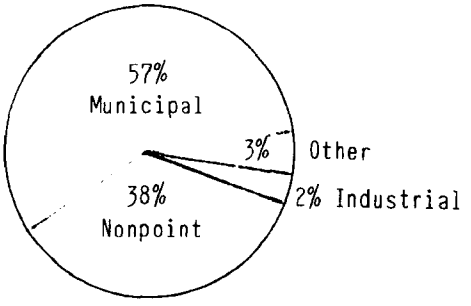
a. Streams and Rivers



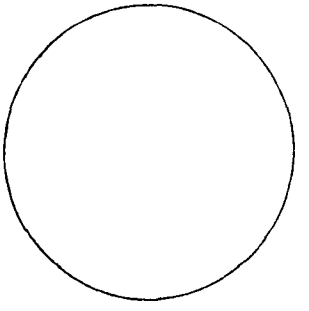
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	** Other	2 Most Serious
Municipal	X	X	X						DO, Nut.
Industrial		X			X	X	X	X	SS,Toxics
Non-Point	X		X			X	X	X	Coli. Nut.
Other (inc. natural)		X							

**Iron and Cobalt

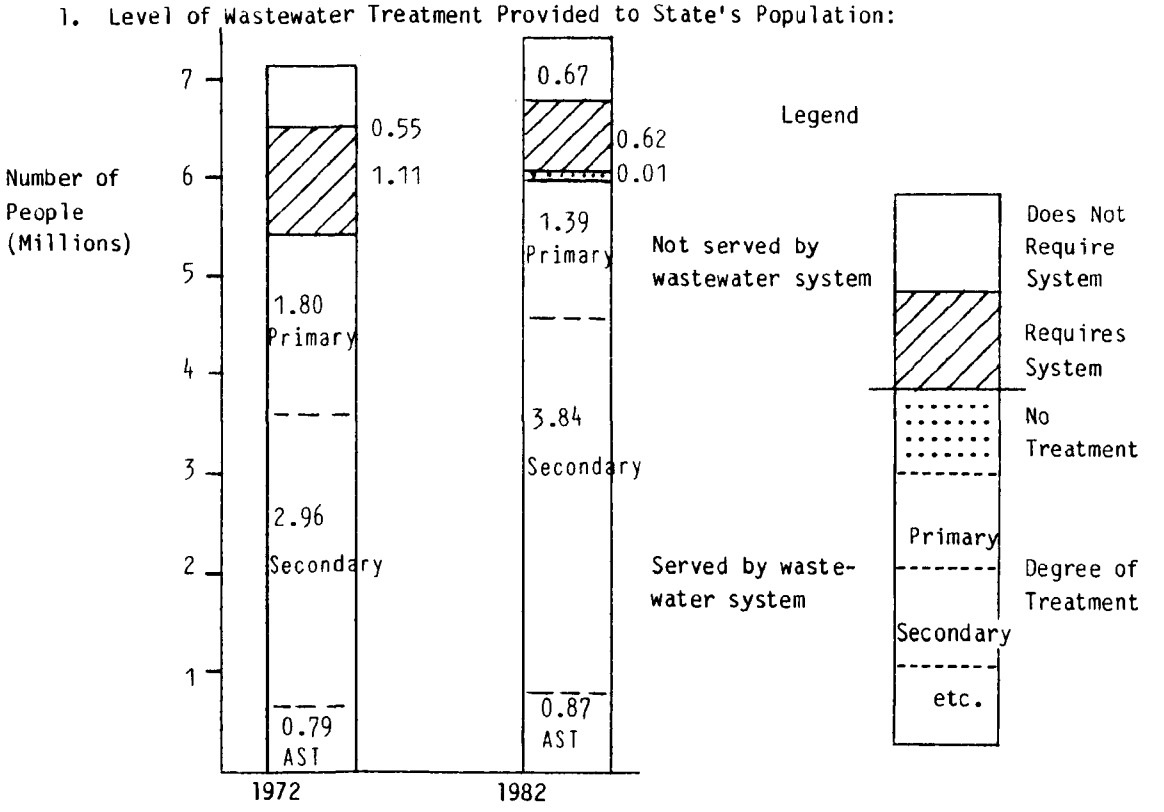
*Number of Stream/River Miles Affected by Toxics:[1]	30
*Number of Lake/Reservoir Acres Affected by Toxics:[1]	212
*Number of Estuary and Ocean Square Miles Affected by Toxics:[2]	40
*Number of Ocean and Great Lakes Mi. Affected by Toxics:	

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

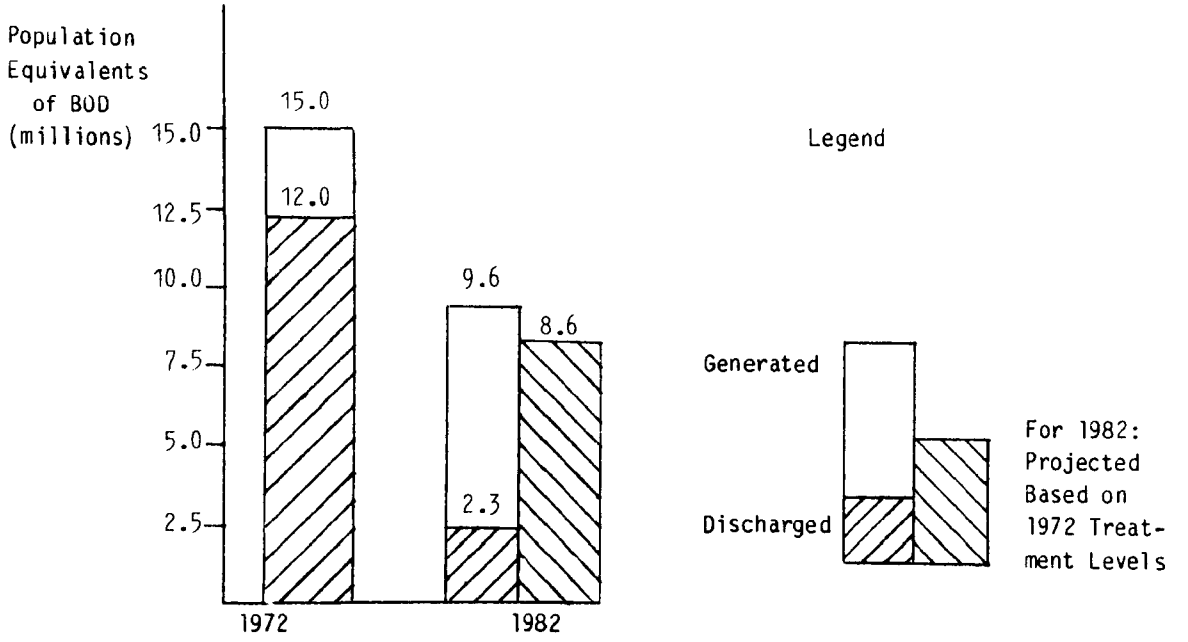
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

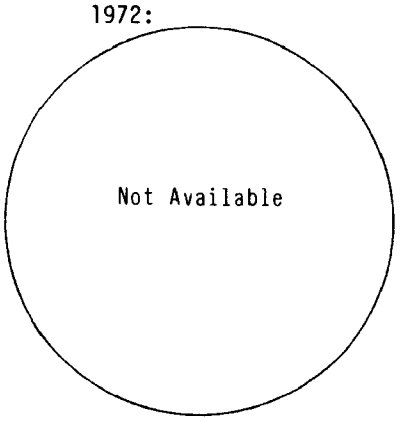
a.

	1972	1982 Interim Permits	1982** Final Permits	
Facilities with Permits	N/A		298	
Facilities Meeting 1982 Permit Requirements+	N/A		230	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	N/A		77%	
Percentage of Flow For Which Requirements Met+	N/A		40%	
Facilities Needing Upgrading/ Regionalization	N/A		100	298

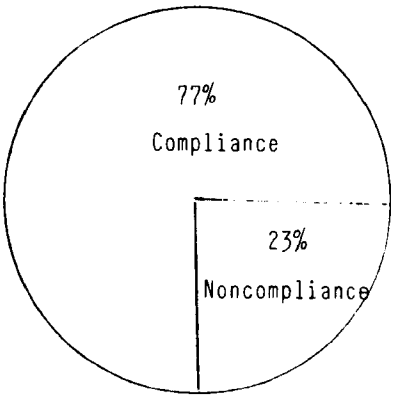
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



**Total Permits

B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982** Final Permits	
Facilities with Permits	N/A		1,018	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	N/A		804	
Percentage of Facilities for Which Requirements Being Met	N/A		79%	
Percentage of Flow for Which Requirements Met+	N/A		65%	1,018

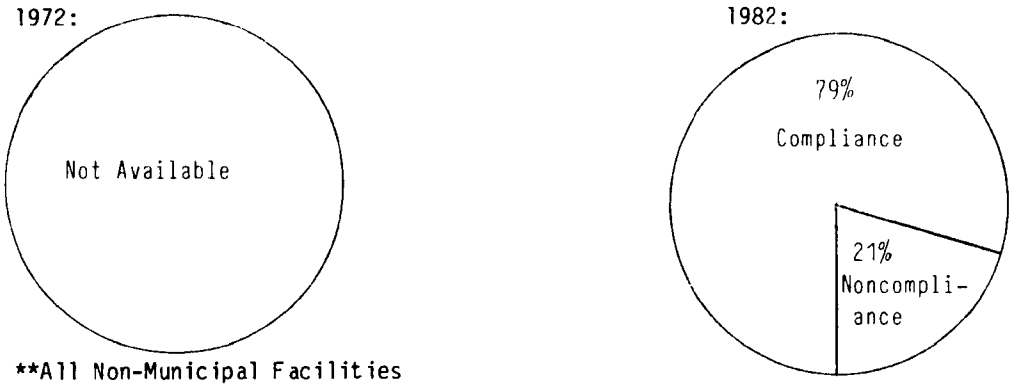
+Includes "No-Discharge" Facilities

N/A = Not Available

*Approximation

**Total Permits

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982**
By Percentage



**All Non-Municipal Facilities

IV. NON-POINT SOURCE POLLUTION CONTROL

The quality of New Jersey's surface waters are affected by nonpoint sources of pollution. Nonpoint source pollution is particularly complex because of the diversity and intensity of land uses in most watersheds of the State. Prominent nonpoint sources in New Jersey include drainage from agricultural areas (bacteria from animal wastes, nutrients and pesticides) and contaminated runoff from urban/suburban areas including the heavily urbanized and industrialized regions (runoff consisting of toxics, sediment, nutrients, bacteria, petrochemicals and metals). New Jersey's 12 Water Quality Management (208) Plans identify nonpoint sources as contributing various pollutants at levels often equal to, or greater than, loads generated from point sources. This has frequently resulted in difficulty in meeting designated stream uses.

In an effort to mitigate the impacts of nonpoint sources in New Jersey, federal, state and local agencies have been increasingly active in the area of water quality management planning and implementation. Agricultural nonpoint source pollution, such as soil erosion, loss of cropland nutrients and manure storage runoff, have been receiving much attention through the U.S. Soil Conservation Service (SCS) and State Soil Conservation Districts (SCDs). The SCS has completed 11 watershed protection projects in the State designed to reduce soil erosion and agricultural related water quality problems (3 additional projects have been authorized for installation). The 16 state SCDs review construction, mining, silvicultural and land disturbance activities for compliance with State Soil Erosion and Sediment Control Standards. The NJ Stormwater Management Act, passed in 1981, amends the State's Municipal Land Use Law to require that updated Municipal Land Use Plans and Ordinances contain provisions for stormwater quality/quantity management. A number of New Jersey counties have stringent stormwater control ordinances for new development, requiring ground recharge for both water quality and ground water protection.

Other activities in New Jersey directed at reducing nonpoint source pollution include the Stream Encroachment Permit program which currently proposes environmental standards for stream and hydrological modification projects; Water Quality Certificates (Section 401 of the federal Clean Water Act) for dredge and fill projects; New Jersey Pollutant Discharge Elimination System (NPDES) permits for significant nonpoint sources and ground water discharges; and special nonpoint source controls in the State's coastal zone (through the Coastal Area Facilities Review Act of 1972). The NJ Department of Environmental Protection is seeking to sponsor county demonstration projects for various watershed protection issues in the State. These

projects will focus on stormwater detention/retention basin maintenance, aquifer protection, remedial measures for nonpoint source control and on-site system management.

Increasing concern in New Jersey is being centered on the spread of toxic and hazardous substances through nonpoint sources. Major commitments by the State have been made to study and correct this problem. There now exists statewide spill containment requirements for industrial and chemical/fuel storage sites, and known hazardous waste sites receive NPDES permits as site mitigation and clean-up activities are underway.

The increasing number of existing and proposed nonpoint source control programs and activities in New Jersey signifies the recognition of this pollutant source as a major water quality problem that must be effectively dealt with if state and national clean water goals are to be met.

Summary - Non-Point Source Pollution Control

	Urban[1]	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.**	Residuals[2]
Severity & Extent	S/W	S-M/L	I/L	I/L	M/L	M/L	S-M/L	S/L
Primary Pollutants	C,M,Nut. OxDe	C,Nut., OxDe,P, SS	0*	SS,T	SS,T	LoFlo	Sal	M,Ox De, P, pH

0* = temperature/stream shading
** = Primarily a ground water concern
[1] Includes Suburban
[2] Includes Land Disposal

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Enforcement efforts are initiated on routine compliance monitoring inspections, review of self-monitoring reports and/or complaints received from public and private concerns. Enforcement is undertaken in a progressive process unless the severity of the situation would warrant immediate referral to the Attorney General with the issuance of court ordered injunctions. This progressive approach begins with consultation or negotiations via telephone calls, letters and conferences to arrive at an agreeable solution to the given situation. This initial effort is highly successful and averts formal actions in many cases. The formal actions proceed with the issuance of directives that detail the violation, direct a remedy within a given time frame and notifies the party of its potential liabilities. Failure to comply with a directive results in an Administrative Order which may include a penalty assessment. Further failure to comply results in a referral to the A.G.'s office for formal litigation.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

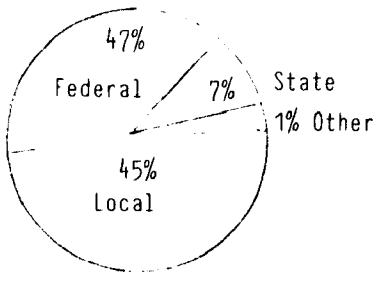
Total Number of Facilities:	1,491
Number of Pre-Administrative Actions:	1,047
Number of Administrative Actions:	171
Number of Judicial Actions:	43

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 3,874 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,824 Million
Other Federal:	$ 16
State:	$ 292
Local Match:	$ 316
Other Local:	$ 1,426

C. Program Activities

Water Quality Monitoring - The basic need for sound water quality monitoring programs has not decreased in the 10 years since the passage of the National Clean Water Act, but rather increased. New Jersey has utilized primarily fixed-station monitoring networks in cooperation with the Environmental Protection Agency and United States Geological Survey. Although the actual number of surface water monitoring stations sampled by the Department of Environmental Protection has decreased over the last ten years, the type of monitoring conducted has diversified. Intensive surveys for waste load allocation and system analyses purposes number 2-3 per year; lake surveys have been performed on all public lakes in the States; baseline sampling programs for determining the extent of carcinogenic and toxic substances statewide is among the most comprehensive in the nation; greater resources are being used for ground water ambient and pollution monitoring; and cooperative monitoring agreements with sub-state agencies is now underway. Quality Assurance of data gathering and analysis techniques; and computerized data storage, retrieval and analysis require separate programs. Bacterial sampling of the State's ocean, coastal and estuarinee waters will continue as in the past so that shellfish harvesting areas can be properly classified.

For the future DEP anticipates greater levels of effort in the following: intensive surveys for the purpose of identifying specific water pollution sources and stream conditions, sub-state ambient monitoring activities, and ground water quality data collection and analysis. DEP performed fixed-station monitoring will play a lesser role.

Water Quality Management - Water quality management planning in New Jersey has evolved full circle since initial planning activities were performed under the auspices of the Clean Water Act. Basin plans, for the purpose of identifying basin-wide wastewater treatment needs, were generated for the State in the mid-1970's as the first comprehensive planning activity. Subsequently, the 12 areawide Water Quality Management (208) Plans analyzed both point and nonpoint source impacts and named management agencies for control of these forms of pollution. A Statewide Water Quality Management Plan has recently been produced by the DEP as part of the continuing planning process, while designated Water Quality Management agencies continue work on various projects of local interest. Water Quality Management Plan consistency determinations and amendments are major planning activities that are currently underway and will be ongoing in the future. The DEP is requesting and encouraging the local Water Quality Management agencies to perform these consistency determinations. In addition, the preparation and revision of State Water Quality Standards and Water Quality Inventory Reports are considered an integral part of the State's water quality planning work. Other planning activities underway in DEP include waste load allocation/stream system analysis, sludge and septage management planning and numerous site/watershed-specific problem solving projects.

Permitting The proper permitting of point sources and other actions having adverse environmental impacts is a major goal of the DEP. Prior to EPA's delegation of the NPDES program to New Jersey in April, 1982, (subsequently, known as the New Jersey Pollutant Discharge Elimination System/NPDES program), the Department reviewed and certified NPDES permit applications/renewals for EPA Region II. Upon delegation the State inherited a backlog of 500 unissued and expired permits which will take over 2 years to eliminate (there are currently approximatly 1600 permitted discharges in the State). NJPDES permits are issued to surface and ground water point source discharges, selected runoff sources (primarily industrial sites known

or suspected of containing hazardous substances and or petroleum products), sludge disposal locations and solid waste disposal sites. Support activities include wasteload allocation studies; sewer ban reviews; development of a comprehensive municipal ordinance strategy addressing sewer bans; technical and conceptual review of sewerage treatment plants; preparing and computerizing permits, their associated limitations and self-monitoring data; and maintaining fee schedules so that the NJPDES program is adequately funded. Industrial pretreatment programs are being developed that rely heavily upon local agencies for implementation, with some programs funded by Construction Grants monies.

The DEP has also streamlined the issuance and review of Division-required permits. Water Quality certificates, NJPDES and Division Resources permits are coordinated through a centralized office for technical review and consistency determination with Water Quality Management Plans. This coordinated permit effort, alongwith operation of the NJPDES program, will better identify and mitigate impacts on our water resorces.

Construction Grants Program - The building of new, enlarged and advanced municipal sewerage treatment facilities through the Construction Grants Program (CGP) has been a major accomplishment of the Clean Water Act. Since 1973 $3.8 billion have been obligated for the construction of water pollution control facilities in the State, with an estimated $6.4 billion additionally needed through the year 2000. To ensure the most effective allocation of these monies the DEP performs these functions: reviews all facility plans (including construction plans and specifications); develops and implements new plans where necessary; monitors and tracks projects; prepares project priority lists and systems; conducts need surveys; maintains computerized grant files; develops innovative/alternative systems for wastewater treatment and land disposal systems; and coordinates review of projects with other programs as necessary. In October, 1981 the DEP was granted total program assumption under the Delegation Agreement executed with EPA. This delegation expedites the project review and approval process by consolidating the process into 1 program within DEP.

The CGP has been involved in 2 issues that will become of greater concern in the future. First, DEP engineers have been working with local agencies to solve operational problems occurring at treatment facilities. The success rate for correcting these problems has been high. Secondly, the DEP has proposed an innovative funding mechanism to spread limited monies to as many needed existing and proposed facilities as possible. The proposed "Infrastructure Bank" would convert construction grant monies to zero or low interest loans for use in a revolving account. National and State legislation is required to bring about this proposal, however.

VI. SITE-SPECIFIC SUCCESSES

Southern Coastal Estuarine Waters

New Jersey's shellfisheries resources have continued to support viable commercial and recreational interests, largely because of water pollution control efforts. This is especially true in the resource rich estuarine waters of Ocean, Atlantic and Cape May Counties. The estuarine waters of these southern coastal counties, while only comprising 20% of the bays and estuaries monitored for shellfish growing water quality in the State, accounts for approximately 65% of the State's total annual shellfish harvest. This represents a significant portion of the State's annual shellfish dockside value of $28.5 million.

The coastal estuaries and bays of Atlantic County have appeared to be the prime beneficiary of higher treatment efficiences at municipal sewerage facilities and the abandonment of small, poorly operating facilities into regional system. In the early to mid 1970s the County's estuarine waters were classified by the NJDEP Bureau of Shellfish Control primarily as condemned or special restricted (meaning shellfish can be harvested but they must undergo further processing to cleanse themselves). Because of the large resource base found in these poor quality waters they were able to support a relay program. This involves taking clams from special restricted or condemned waters to approved waters for a minimum of 30 days. This allows the clams to purge themselves of contaminating bacteria and or viruses. Antiquated and primary municipal treatment plants discharging to the County's back bays were the principal reason for the poor quality of these shellfish growing waters. Atlantic County and the DEP recognized early in the Construction Grants program the need to eliminate these primary treatment plants for the purpose of restoring shellfish harvesting areas and protecting the many bathing beaches in the region. As a result, the proposed Atlantic County Sewerage Authority's Coastal Region sewerage project progressed at a fast pace and received high priority in the State's early Construction Grants Project Priority List. The result was the completion of a secondary treatment facility in 1977 discharging to the Atlantic Ocean.

Water quality benefits to the County's back bays became evident in only 2 years. Shellfish growing areas monitoring in 1978 and 1979 for Atlantic County's back bays resulted in approximately 5,000 acres being upgraded from condemned to seasonal, special restricted or approved categories. Water bodies like Reed Bay, Absecon Bay, Lakes Bay, Scull Bay and Somers Cove once again became viable shellfish harvesting areas. Bacterial data collected in 1979 showed further water quality improvements in Steelman Bay, the Broad Creek area of Reed Bay and Scull Bay, resulting in approved status to nearly 2,200 acres.

The upgrading and or regionalizaion of municipal treatment facilities up and down New Jersey's coast has had positive impacts on water quality, and subsequently, the State's shellfish industry. The elimination of primary treatment plants discharging to the ocean has also produced the upgrading from condemned to approved status of over 22,000 ocean acres. The DEP considers these waters quality improvements just one of the most significant in the State since the early 1970s.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The number of major issues concerning water quality in New Jersey have grown over the past decade. This is not due to an inability to solve existing problems, but rather the identification of new and or unanticipated problems. Improving treatment efficiencies at the majority of the municipal and industrial wastewater facilities was the prime concern for the State in the 1970s. The construction of new regional facilities, upgrading existing treatment works and ensuring permit compliance made up much of the DEPs early water pollution control efforts. However, the new issues that developed were numerous and varied, and included: maintaining water quality while developing new diversions for water supply needs and meeting existing needs; expanding our knowledge of ground water quantity and quality in the State, developing a ground water permitting program, and responding to major increases in ground water pollution incidents; identifying the presence of toxic and potentially carcinogenic substances in the State's water environment; controlling the spread of toxic and hazardous substances from abandoned and existing landfills, accidential spills and industrial facilities; initiating pretreatment guidelines and programs; developing alternatives to the ocean dumping of sewage sludge and studying the impacts of such dumping on the marine environment; developing alternatives to centralized and conventional municipal sewerage works; controlling the illegal disposal of septage; monitoring and studying the occurrence of red tide in near shore ocean waters; and understanding and controlling where possible nonpoint pollution sources.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

New Jersey has placed heavy emphasis on the correction of the first 3 problems noted above. The recent 1980-1981 drought precariously reduced many community water supplies to only a few days reserve and underscored the need to develop additional water supply sources. Protecting the instream quality of the State's major water supplies is an integral part of developing these new sources. New Jersey has nearly 140 landfill/dump sites that are known to be contaminating surface and/or ground waters. This, in combination with the high number of operating and abandoned chemical, petroleum and other industrial facilities points to the potential for harmful toxic substances contamination in many areas of the State. Ground waters are of major concern as demand for it increases (approximately one-half of the State currently relies on it for water supply), pollution incidences rise, water levels drop and salt water intrusion occurs. Operationally within the DEP, the NJPDES permit program remains backlogged with unissued and expired permits it inherited when the program was delegated; an improved working framework for NJPDES ground water permits is needed; proper fee schedules reflecting administrative costs must be devised; and, if municipal treatment needs are to be met to the year 2000 and beyond, innovative/alternative funding mechanisms will be required in the face of severely reduced federal support.

AGENCY PREPARING REPORT: N.J. Dept. of Environmental Protection
Division of Water Resources

CONTACT PERSON & PHONE #: John Gaston - 609-292-1637

DATE: August 15, 1983

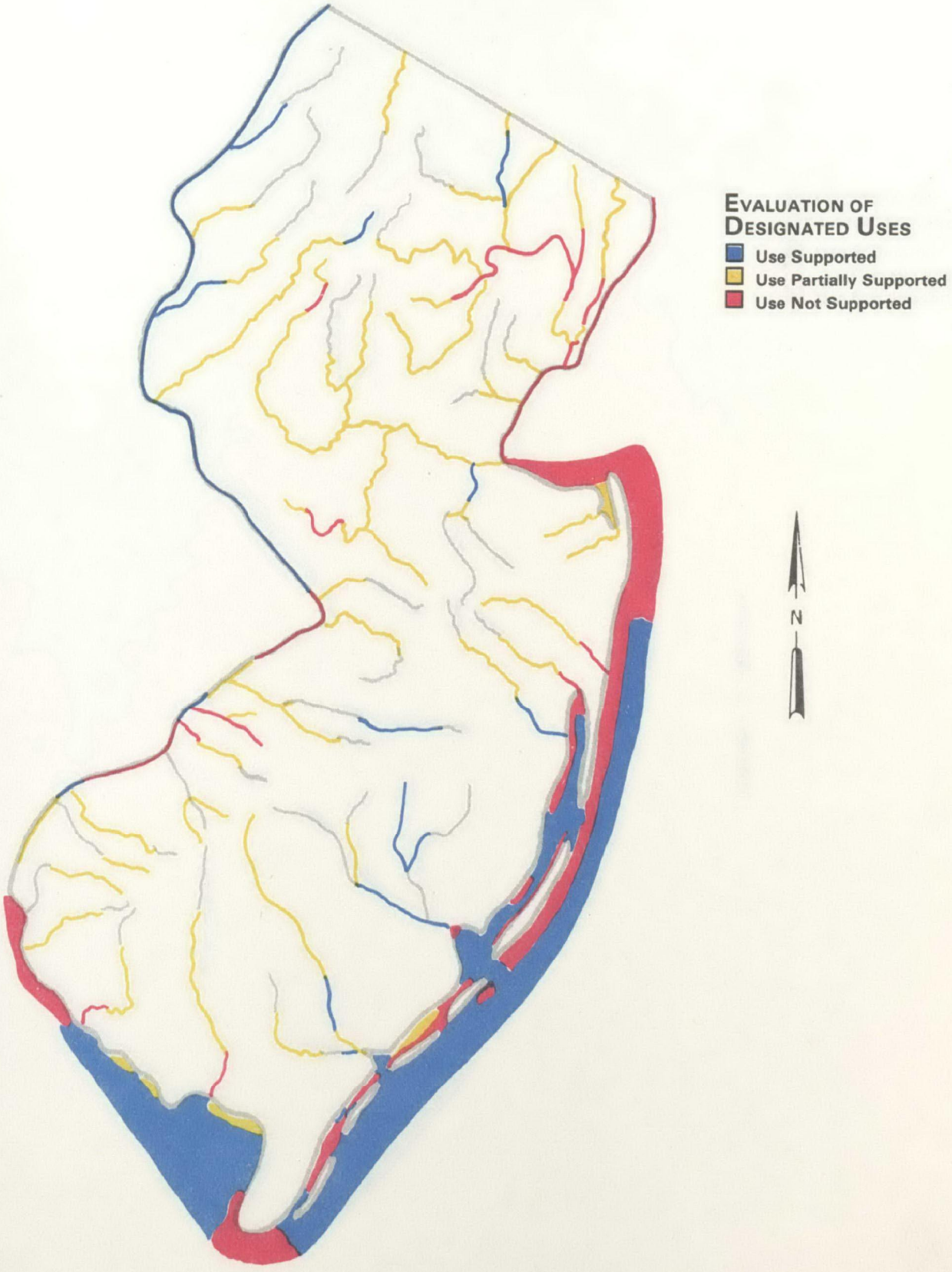
Footnotes

1 Reflects only miles/acres where toxics have prevented a designated use (i.e. waters where closures and fishing bans are in effect due to toxic substance contamination). Mileage/acreage figures do not reflect areas identified with low levels of toxic substance contamination, but only where a use has been prevented.

2 Square mileage figure represents area of tidal and costal waters where PCB contamination has resulted in a closure of the waters for a use, (specifically, the sale of striped bass and American eel taken from specified waters is prohibited). In addition to this closure, fishing advisories have been issued by the State of New Jersey on the following fishes in specified coastal waters, because of PCB contamination. The advisory recommends that they not be consumed more than once weekly (area of advisory extends beyond State's jurisdictional waters. The fish include:

- bluefish, (individuals exceeding 24 inches in length or 6 pounds in weight)
- white perch
- white catfish
- striped bass
- American eel (all waters statewide)

NEW JERSEY
1972



NEW JERSEY
1982

EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

N

State of New Mexico*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 1,017,055 1980 1,302,894
State Surface Area 121,166 sq. miles
# of Basins 11
# of River and Stream Miles*a. 3,500 mi.; # of Border Miles* 1.7 mi.
# of Lakes and Ponds and Acreage *b. NA / NA ac.
# of Marsh or Wetlands ac./sq.mi. NA ac. or NA sq. mi.
# of Coast Miles NA mi.
# of Estuary sq. mi. NA sq. mi.

*Border Rivers:

Name/Mileage Rio Grande/1.7 *c. Name/Mileage

Name/Mileage Name/Mileage

*a. Includes main-stem reservoirs. *b. Only main-stem reservoirs are designated in the standards.

*c. Approximate mileage. State line wanders back and forth across river.

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

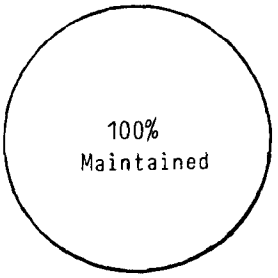
1. a. Miles Assessed: 3,500
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,500 (domestic water supply)
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: (Points were monitored, not miles of stream)

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	3,450 mi.	50 mi.			3,500 mi.
	99%	1%			100%
1982	3,450 mi.	50 mi.			3,500 mi.
	99%	1%			100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	0	0
Miles Degraded:	0	0
Miles Maintained:	3,500	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: _____

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: _____

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____

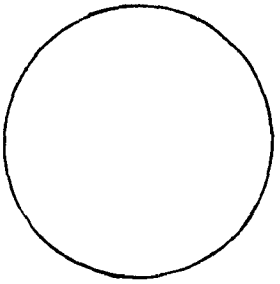
d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	ac.				ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

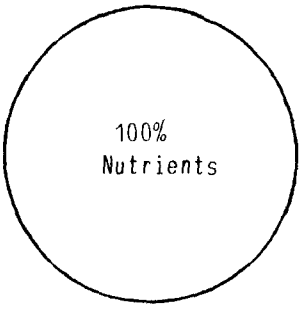


	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

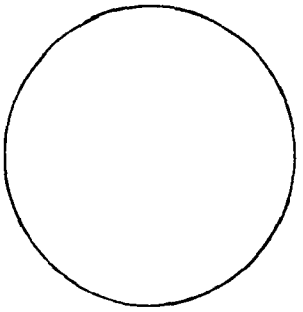
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- by Percentage

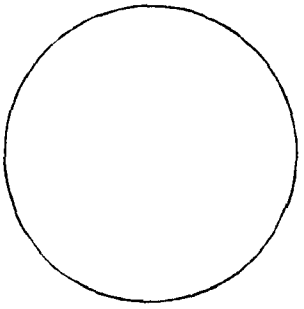
a. Streams and Rivers



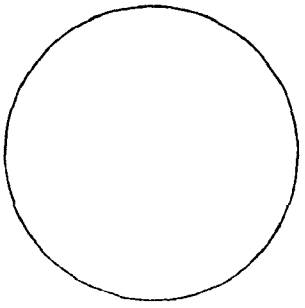
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal			X						Nut.
Industrial									
Non-Point			X						Nut.
Other (inc. natural)									

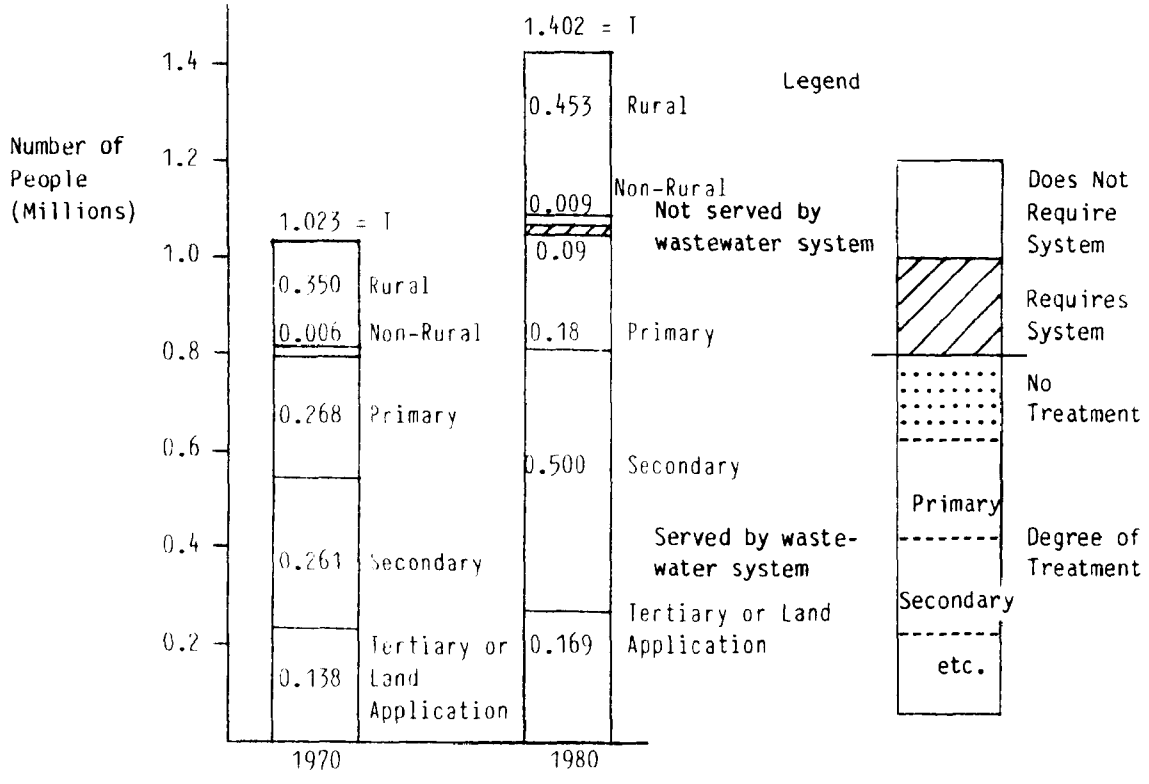
*Number of Stream/River Miles Affected by Toxics: 0
*Number of Lake/Reservoir Acres Affected by Toxics: _____
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

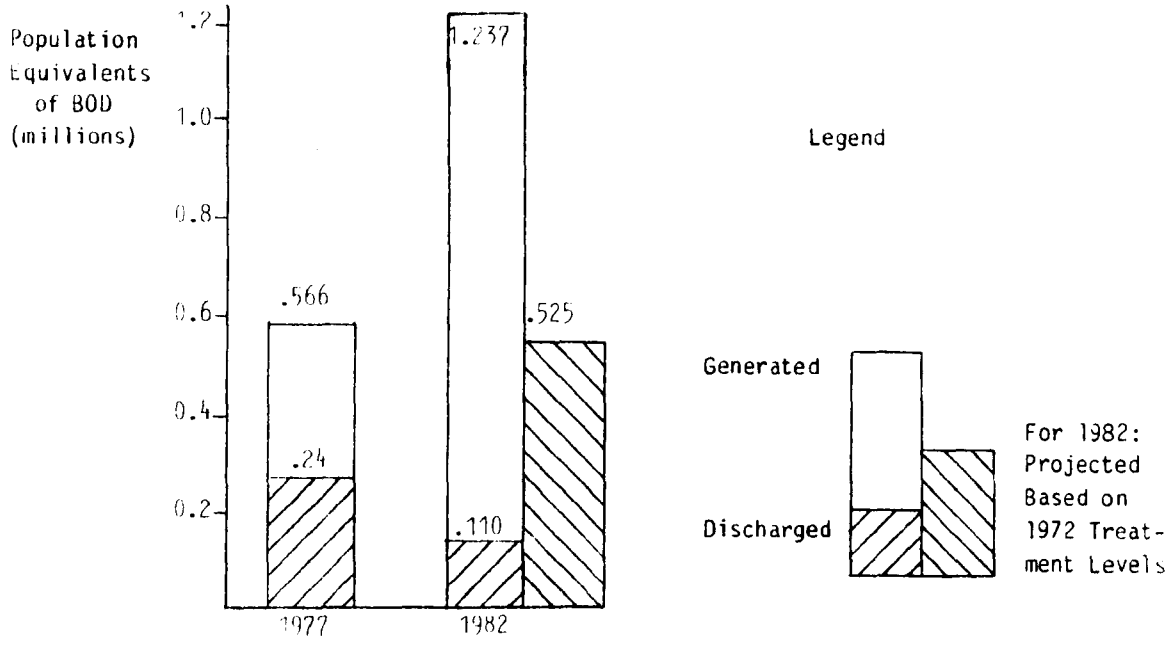
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

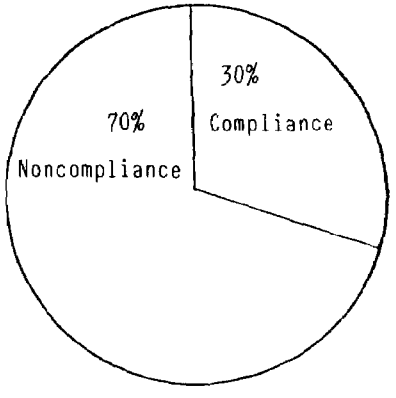
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	10	2	14	
Facilities Meeting 1982 Permit Requirements+	3	0	10	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	30%	0%	71%	
Percentage of Flow For Which Requirements Met+	15.8%	0%	87%	
Facilities Needing Upgrading	7	2	4	45

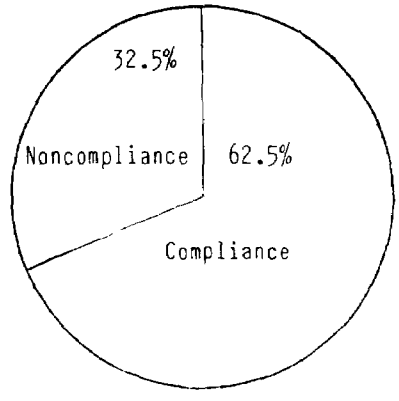
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972**	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	22	29	0	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	15	23	0	
Percentage of Facilities for Which Requirements Being Met	68%	79%	0%	
Percentage of Flow for Which Requirements Met+*	-	-	-	63

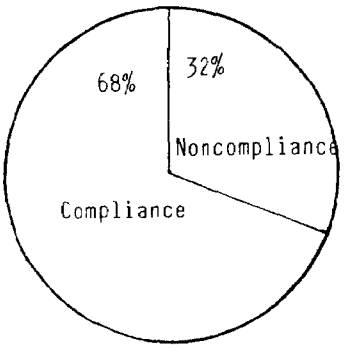
*Only the power plants have flow requirements.

+Includes "No-Discharge" Facilities

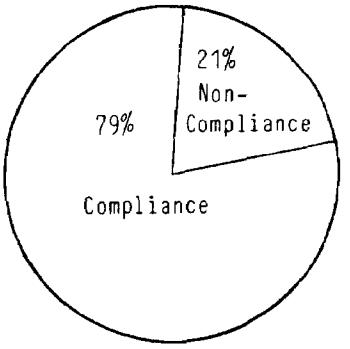
**July - Sept. 1979 is substituted for 1972.

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

While the principal categories of nonpoint sources that occur in New Mexico are discharges to ground water (including discharges from residual wastes/land disposal and mining) and agriculture/irrigation, pollutants from these sources have little-to-no impact on attainment of designated uses of surface waters. This same conclusion holds true for other nonpoint sources. Existing uses were carefully considered when designated uses were specified for stream segments.

Ground Water Discharges. In 1977 New Mexico adopted ground water quality regulations designed to protect ground water of 10,000 mg/l or less total dissolved solids for present and potential use as domestic and agricultural water supply. Under these regulations an approved discharge plan is required in order to discharge to ground water.

Agriculture/Irrigation. Both the Water Quality Management Plan and the Soil and Water Conservation Plan encourage a voluntary program of sediment control through the use of management practices. The water quality basins identified as priorities for sediment control are the Upper and Middle Rio Grande, the Arkansas-White-Red Rivers, the Pecos River, and the San Juan River.

A recent addition to the Water Quality Management Plan is a voluntary program intended to help reduce salt loading resulting from irrigation return flows. The benefit to be realized from use of suggested structural and management practices is presently unquantifiable.

Silviculture. A manual on management practices has been prepared and a voluntary program of implementation is being encouraged through an information and education program.

Hydrologic Modification. Dissolved oxygen violations in the Pecos River below Carlsbad have been attributed in part to low flow during the irrigation season resulting from dams and diversions. Nevertheless, this segment is able to support its designated use of warmwater fishery.

Urban Stormwater. Generalized overland runoff in the Middle Rio Grande, including urban runoff from Albuquerque, results in short-lived fecal coliform bacteria violations during the summer thunderstorm season that do not affect attainment of designated uses.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.**	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent*	I/L	I/W	NA/L	NA/L	NA/L	M/L	NA/L	NA/L
Primary Pollutants	C	ss (Ag) sal (Irr)				Lo Flo		

* Surface water impact only.

** Extent includes both rangelands and irrigated acreage.

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The New Mexico Water Quality Control Commission (WQCC) has determined that the U.S. Environmental Protection Agency (USEPA) should be the primary enforcer of NPDES permit limitations. Under WQCC regulations the state must wait a 30-day period after USEPA has provided written notice of violation to a discharge before enforcing WQCC regulations on discharges to surface waters.

Under state law, the state must make "every reasonable effort to obtain voluntary compliance". Necessary further action is determined by consultation between legal and water pollution control staffs to fit the specific case. Judicial enforcement is handled under water quality and/or nuisance statutes. As an administrative alternative, the WQCC may accept an assurance of discontinuance negotiated with the charger that sets forth steps and a timetable to remedy the violation.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

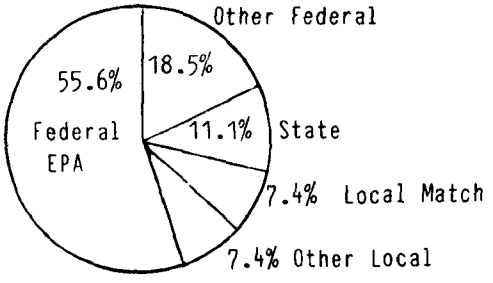
Total Number of Facilities:	12
Number of Pre-Administrative Actions:	12
Number of Administrative Actions:	12
Number of Judicial Actions:	4

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 270 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 150 Million
Other Federal:	$ 50
State:	$ 30
Local Match:	$ 20
Other Local:	$ 20

C. Program Activities

The Water Quality Control Commission, the policy and rule-making body for water pollution control, was established in 1967 under the NM Water Quality Act. The Commission has delegated major responsibilities for administering Commission regulations and other programmatic activities to the NM Environmental Improvement Agency (EIA) and its successor agency, the NM Environmental Improvement Division of the Health and Environment Department (EID).

In 1972 tne Commission was actively involved in the development of a water pollution control program for New Mexico. The Commission revised its regulations to allow easier incorporation of future regulations. Throughout the year the Commission discussed the applicability of its regulations to specific situations, its relation to other regulatory agencies, and delegation of its authority. The Commission endorsed EIA's requirement for certified operators at plants receiving construction grants funding and EIA's proposal to develop more stringent water quality standards to protect mountain streams.

In 1982, on the other hand, the Commission was involved in administrative oversight and perfection of water pollution control programs. The Commission held a series of discussions on state primacy in the underground injection control (UIC) program and authorized EID and the Oil Conservation Division to proceed with the steps in the primacy process. The Commission approved assurances of discontinuances, negotiated by EID, with a municipality, a privately owned wastewater treatment plant, and an electric generating plant that laid down conditions, schedules,and sanctions for coming into compliance with Commission regulations. The Commission also adopted stringent wasteload allocations, developed by EID, for two municipal dischargers to mountain streams. A municipality was fined because of continued violations of a stipulated judgment. The Commission adopted revised stream standards for one stream segment and brought the state's standards into line with the most recent updating of Colorado River Salinity Forum standards. Appointments were made to the NM Utility Operators Certification Advisory Board.

In a similar way EIA's limited water pollution control program developed into EID's comprehensive program between 1972 and 1982. In the former year, EIA's water quality program, which had a staff of 15, was directed primarily at construction of water and wastewater facilities. Water quality surveillance techniques were still being developed and the staff available for this activity was limited to two. In contrast, in 1982, EID's Water Pollution Control Bureau had a 47-member staff engaged in an integrated program of surface and ground water monitoring and surveillance; enforcement of Commission regulations regarding discharges to surface water, ground water quality protection, and certification of water and wastewater utility operators; administration of the wastewater construction grants program; and planning and evaluation for program effectiveness. Along with this growth the water supply and water supply construction grants program and the individual liquid waste disposal program had been established as separate programs with central office staffs of eight and two respectively. These programs also use EID's 99-member field staff located throughout the State.

VI. SITE-SPECIFIC SUCCESSES

1. Successful state enforcement action against an industrial discharger.

State enforcement action regarding Public Service Company of New Mexico's (PNM's) San Juan Generating Station is apparently resulting in the recovery of an aquatic ecosystem in Shumway Arroyo, which received the discharge of power plant wastewater. The state conducted a detailed compliance sampling inspection of the plant in May, 1980. The results of this monitoring along with self-monitoring data indicated numerous NPDES permit violations. Observations of Shumway Arroyo in April, 1982, indicated that the arroyo was essentially devoid of life. Erratic and short-term fluctuations in salt and mineral components of the discharge may have been responsible for eliminating aquatic life.

Due to the continuing noncompliance of the plant with state regulations regarding discharges to surface waters and ground water quality protection, the state negotiated an assurance of discontinuance with PNM. The assurance required PNM to meet interim effluent limitations, take specified actions to remedy the problem, and to develop a discharge plan for environmentally safe discharge of effluents. The assurance also specified monitoring penalties for violations.

On May 2, 1983, the state disapproved PNM's plan for discharges into Shumway Arroyo. As a result, the discharge was discontinued on May 13.

A state survey of the arroyo in August indicated that the lower portion of the arroyo supported a healthy invertebrate fauna similar to the San Juan River to which it is a tributary. In addition, mosquito fish were observed in pools.

2. Maintenance of water quality in the Middle Rio Grande water quality basin.

Despite considerable population growth in the middle Rio Grande Basin, stream surveillance and compliance monitoring indicate that water quality has been maintained at levels adequate to support all the designated uses assigned to the basin's water bodies. From 1970 to 1980 the population of this basin increased from about 380,000 or 35% of the state's population to over 560,000 or over 40% of the state's population.

The Middle Rio Grande Basin Plan, completed in March, 1976, concluded that, "In general, state and local water quality management programs in the Middle Rio Grande Basin in New Mexico are meeting present needs." The plan further noted that, "Upgrading of treatment facilities for several municipal point sources in the basin, including Albuquerque, Belen, Bernalillo, Los Lunas, and Socorro, is underway." Since 1976, these plants have been upgraded through the wastewater construction grants program.

The wastewater construction grants program, however, is not the only activity which is responsible for the maintenance of water quality in the basin. Other factors contributing to this accomplishment are the NPDES permit program, state compliance sampling of municipal treatment plants under contract with the U.S. Environmental Protection Agency (USEPA), the state wastewater operators certification and training program, and enforcement actions taken by the state and USEPA against permit violators, such as Bernalillo.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Increasing amounts of domestic wastewater effluents resulting from increasing usage of recreational developments as well as inadequately treated sewage in New Mexico's mountain areas create severe water quality impacts on our limited high quality cold water resources. Primary emphasis has been given to these stream segments in obtaining compliance with discharge regulations by utilizing the full array of pollution control activities including: stream surveillance, enforcement, construction grants, and technical assistance and/or utility operator training.

Contamination of ground water is a widespread problem in New Mexico. This is an especially serious problem in a State like ours where public water supply systems obtain 94% of their water from ground water sources, and nearly 90% of rural domestic water supplies come from wells. Since ground water regulations were adopted in February 1977, over 227 discharge plans (permits) have been approved which provide for prevention of ground water pollution. Focus on prevention of ground water pollution through regulations is a continuing priority since ground water pollution is difficult to correct once it has occurred.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_____ - Identification and control of toxic pollutants from industrial and non-point sources.

_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_____ - Pollution arising from abandoned industrial and/or mining facilities.

Discharges to ground water will continue to remain serious problems. Discharges of concern include domestic wastewater effluent, dairy effluent, base and precious metal milling discharges, and hydrocarbon fuel leaks.

1. The magnitude of discharges from dairies combined with the location of new dairies in urban-fringe areas, often where the ground water is shallow, and the expansion of population centers to surround older dairies creates considerable potential for ground water pollution and public health risks.
2. A recent compilation of existing information indicates that ground water contaminations from hydrocarbon fuels is unexpectedly widespread.
3. A survey of potential ground water discharges completed in 1980 and both undocuments reports and field data developed since that time indicate that organic chemical compounds are a widely distributed and significant contamination problem.

At the treatment plant operator level, some of the most frequently occurring factors limiting municipal wastewater treatment facility performance are: lack of sewage treatment understanding among operators; ineffective application of concepts and testing to process control; and inadequate process control testing.

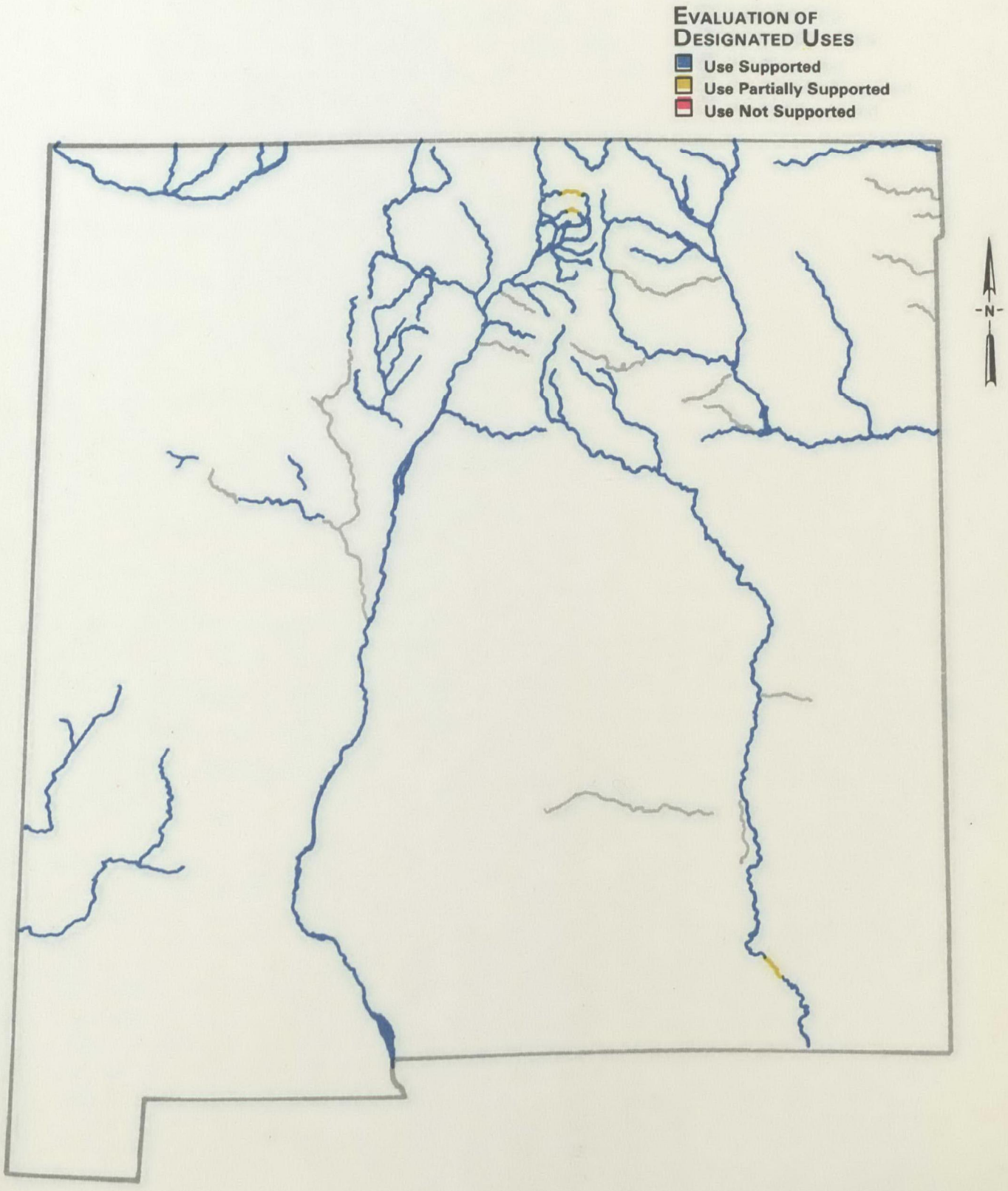
A majority of the municipalities in New Mexico have outdated rates for sewage assessment and hook-up fees. Consequently, they are unable to generate the capital needed to provide adequate operation and management, staff, spare parts inventories, and replacement costs for wastewater treatment facilities. In addition, municipal governments often lack the technical information necessary to manage wastewater treatment facilities. These shortcomings result in poor quality wastewater treatment and water pollution.

AGENCY PREPARING REPORT: N.M. Environ. Improvement Div.

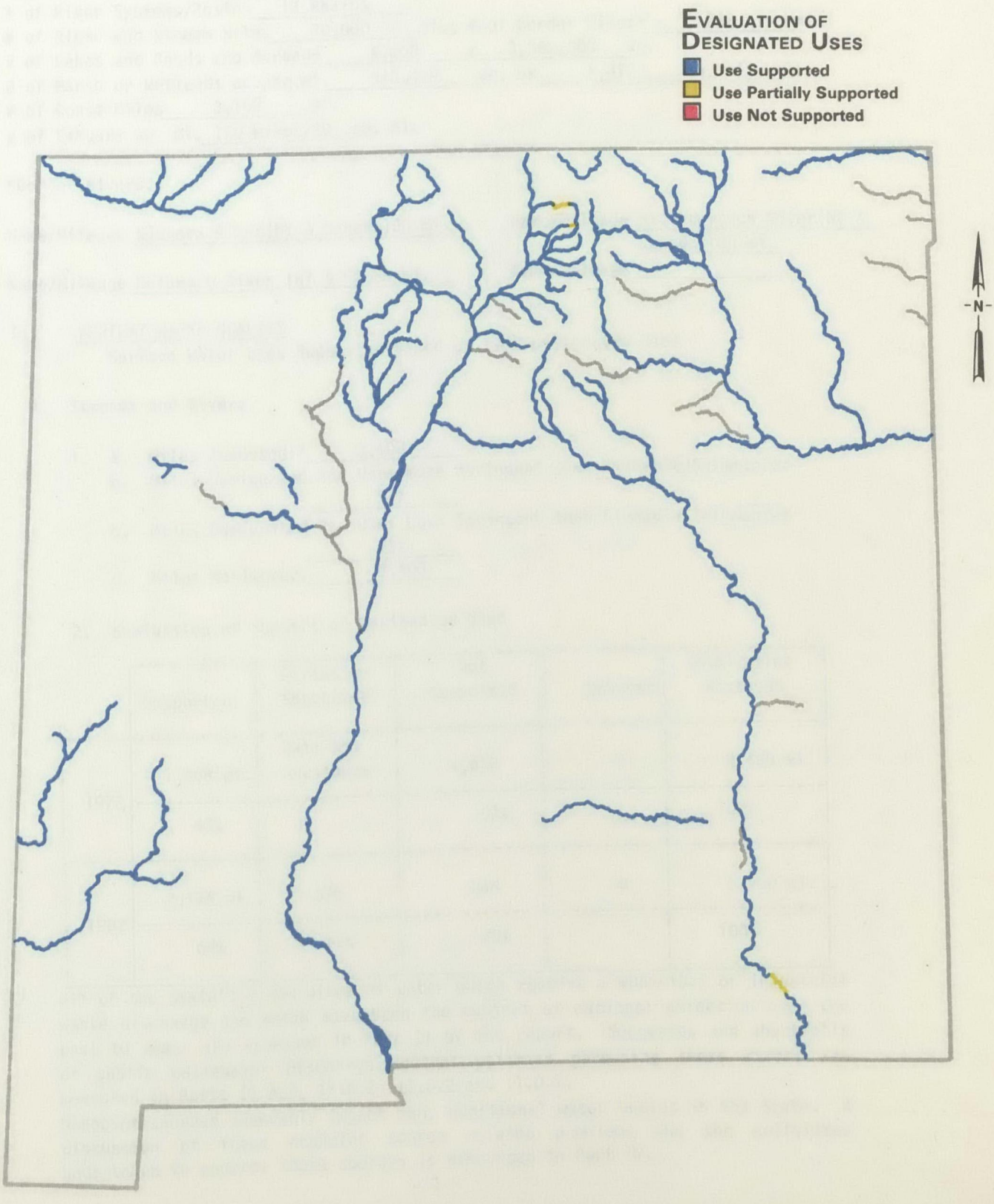
CONTACT PERSON & PHONE #: Douglas Schneider (505) 984-0020

DATE: September 16, 1983

NEW MEXICO
1972



NEW MEXICO
1982



State of New York*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 18,191,000 1980 17,558,072
State Surface Area 49,576 sq. miles
# of River Systems/Basins 17 Basins
# of River and Stream Miles 70,000 mi.; # of Border Miles* 242 mi.
# of Lakes and Ponds and Acreage 4,000 / 3,392,000 ac.
# of Marsh or Wetlands ac./sq.mi. 945,419 ac. or 1,477 sq. mi.
# of Coast Miles 3,102 mi.
# of Estuary sq. mi. 160 miles/20 sq. mi.

*Border Rivers:

Name/Mileage Niagara River(NY & Canada)36 mi.
Name/Mileage St. Lawrence River(NY & Canada)120 mi.
Name/Mileage Delaware River (NY & PA)86 mi.
Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed:[1] 3,400
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 567
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 252
   d. Miles Monitored: 3,400

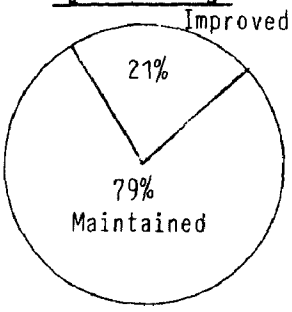
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	1,468 mi.	Data Not Available	1,932	0	3,400 mi.
	43%		57%		100%
1982	2,176 mi.	379	845	0	3,400 mi.
	64%	11%	25%		100%

[1] All of the State's 3,400 miles of water which receive a municipal or industrial waste discharge and which have been the subject of national attention over the past 10 years are assessed in Part II of the report. Successes and shortfalls of public wastewater discharge control policies governing these waters are measured in Parts II.A.2, II.B.2, II.C.2 and II.D.2.
Nonpoint sources adversely impact many additional water bodies in the State. A discussion of these nonpoint source related problems and the activities undertaken to control these sources is discussed in Part IV.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	N/A	708
Miles Degraded:	0	0
Miles Maintained:	2,692	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 578,714
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 104,200
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: Unknown
   d. Acres Monitored: 578,714

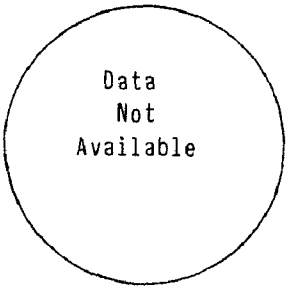
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.	Data Not Available			ac.
					100%
1982	430,565 ac.	67,447	80,702	0	578,714 ac.
	74%	12%	14%		100%

*Data not available

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	N/A	
Acres Degraded:	N/A	
Acres Maintained:	N/A	
Unknown:		

C. Estuaries and/or Oceans

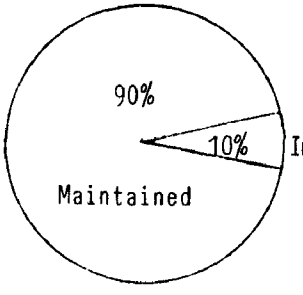
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	523	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	62	/
	d. Sq. Mi./Miles Monitored:	523	/

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	325 sq. mi.	67	131	0	523 sq. mi.
	63%	13%	24%		100%
1982	325 sq. mi.	118	80	0	523 sq. mi.
	63%	23%	14%		100%

3. Changes In and Within Use Support Between 1972 and 1982

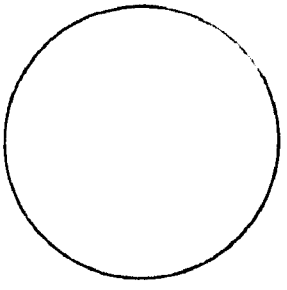
a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:		51
Sq.Mi.Degraded:	0	
Sq.Mi.Maintained:	472	
Unknown:		

NOTE: The term "maintained" means water quality has not improved nor worsened.

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: *4,144 mi^2

b. Miles Designated for Uses More Stringent than Fishable/Swimmable:
4,000 mi^2 approx.

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable:
0

d. Miles Monitored: 4,144 mi^2

*Includes only portion of Lake Erie and Lake Ontario within New York.

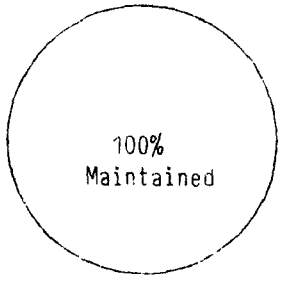
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	584 mi.	0	3,560*		4,144 mi.
	14%	0	86%		100%
1982	584 mi.	0	3,560*		4,144 mi.
	14%	0	86%		100%

* A health advisory exists in Lake Ontario on the human consumption of certain fish species.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



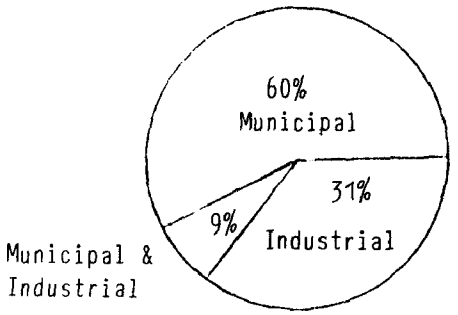
	Within Category	Change in Category
Miles Improved:	0	
Miles Degraded:	0	
Miles Maintained:	4,144	
Unknown:		

Note: Waters maintained means water quality has not improved or worsened.

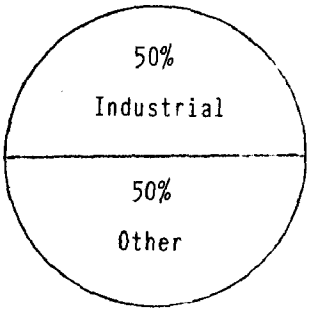
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

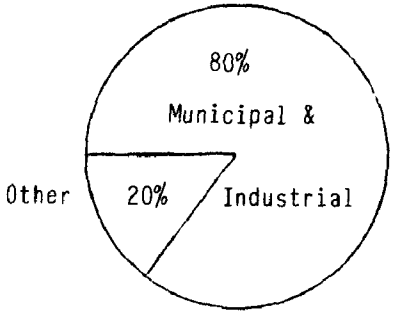
a. Streams and Rivers



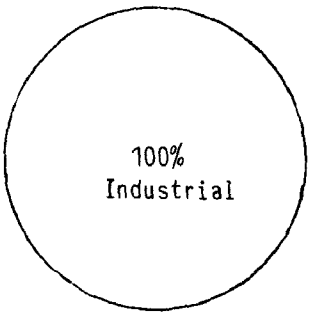
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X	X			X		DO/Coli.
Industrial		X		X	X	X	X		Toxics/BOD
Non-Point	X		X			X	X		Nut./Toxics
Other (inc. natural)	X		X				X		Nut./Turb.

*Number of Stream/River Miles Affected by Toxics:	92 segments/542 miles
*Number of Lake/Reservoir Acres Affected by Toxics:	849 segments/73,707 sq. mi.
*Number of Estuary Square Miles Affected by Toxics:	405 sq. mi.
*Number of Ocean or Great Lakes Mi. Affected by Toxics:+	3,560 sq. mi.

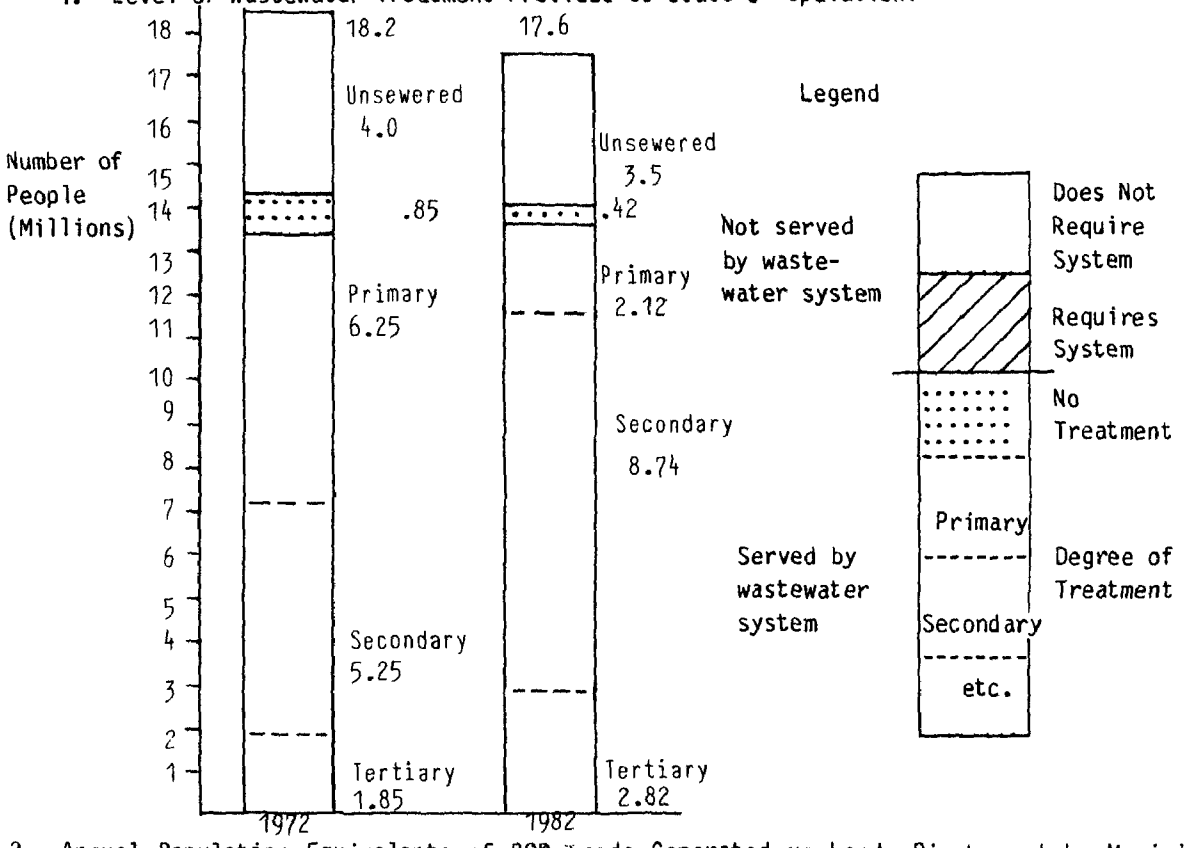
+Great Lakes only.

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

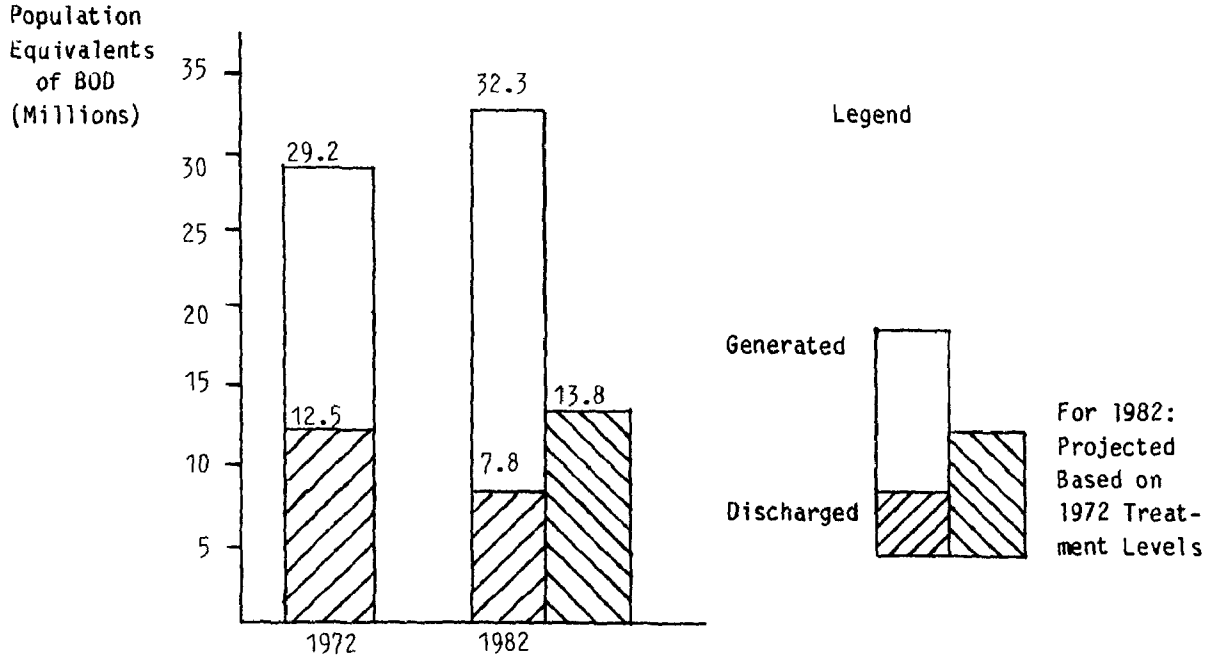
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982** Interim Permits	1982 Final Permits
Facilities with Permits	150		143
Facilities Meeting 1982 Permit Requirements+	90		106
Percentage of Facilities for Which Requirements Being Met in Effect	60%		74.5%
Percentage of Flow For Which Requirements Met+	Not Available		70%
Facilities Needing Upgrading***	60		37

Total Permits in 1982 561*

+Includes "No-Discharge" Facilities

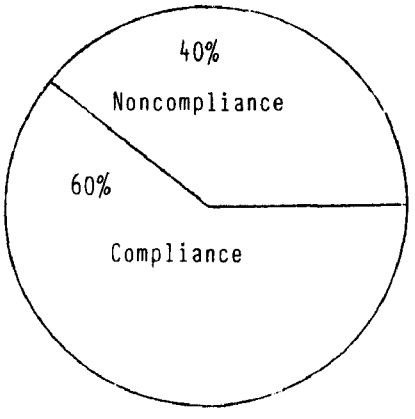
*Information not readily available

***Some need operational assistance

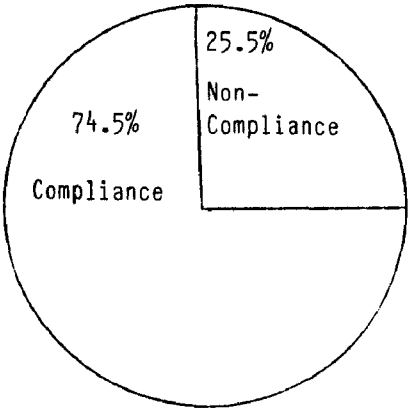
*All municipal discharges

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982** Interim Permits	1982 Final Permits
Facilities with Permits	400		579
Facilities Meeting 1982 Permit Requirements+	50		518
Percentage of Facilities for Which Requirements Being Met	12.5%		89.5%
Percentage of Flow for Which Requirements Met+	Not Available		85%

Total Permits in Effect in 1982 6,439*

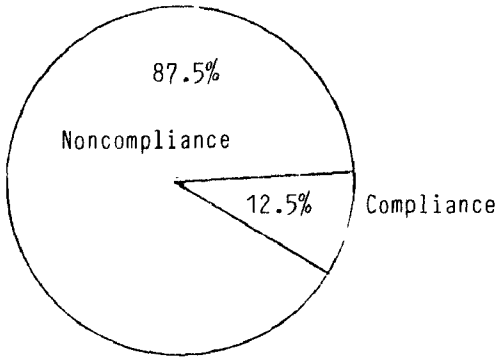
+Includes "No-Discharge" Facilities

**Information not readily available

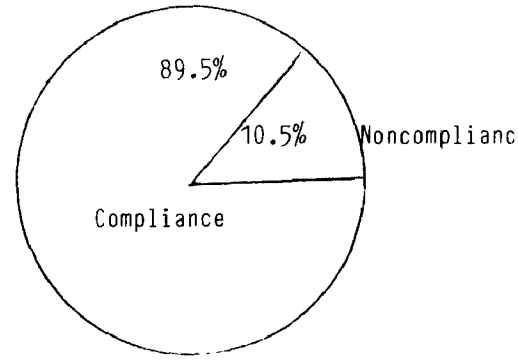
*All material, private, commercial, and industrial

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Reconnaissance studied by the New York State Department of Environmental Conservation (NYSDEC) show nonpoint source impacts on waterways are widespread in the State. Approximately 460 streams (4,730 miles) and 170 lakes (600 square miles) have quality problems caused by nonpoint sources. Eighty percent of the problems are caused by sediment and nutrients from stormwater runoff.

Groundwaters are also contaminated. Leaking industrial chemical and petroleum storage tanks, industrial site runoff and mismanagement of consumer products and pesticides are a serious problem at some locations. Nearly one-third of the landfills in the State do not meet the standards necessary to protect groundwater quality.

Several initiatives have been undertaken by DEC to control nonpoint sources:

- A model implementation program has been initiated to demonstrate the effectiveness of management practices in controlling nonpoint sources. The area selected is the West Branch of the Delaware River which feeds Cannonsville Reservoir, a major source of drinking water for New York City.

- A stream corrdior management manual which contains guidance on good conservation practices for improving water quality is nearing completion.

- Agricultural agencies (ASCS and SCS) have been contacted to establish priorities for deployment of technical and cost-sharing resources for improvement of water quality.

- Legislation has been enacted for protection of sensitive aquifers and for control of bulk storage of petroleum.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/L	I/L	I/L	M/L	I/L	M/L	S/L
Primary Pollutants	C, S S O,M	C,S S.O	O	O	O	O	Sal.	C, M, O

O = Other (Nutrients, Sediments, Toxics)

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: New York has established enforcement priorities which consider factors of public health, existing water quality and water use classifications. Although enforcement is pursued for all dischargers in violaton of permit requirements, priority is given to dischargers creating a public health problem or impairing best uses of a receiving water. Within this policy framework, the State requires all industrial, private, commercial, institutional and municipal dischargers to upgrade and/or operate their facilities as necessary to achieve water quality or public health objectives without regard to the availability of State or Federal financial support.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

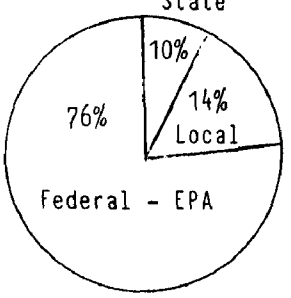
	98 In Noncompliance
Total Number of Facilities: (722 Total)	
Number of Pre-Administrative Actions:	79
Number of Administrative Actions:	18
Number of Judicial Actions:	1

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 4,602 Million (72-82)
2,760 Million (Prior to 72)

By Percentage



Categories of Sources

	1972-82 Million	Prior to 1972 Million
Federal - EPA:	$ 3,500	$ 1,540
Other Federal:	$ *	*
State:	$ 443	774
Local Match:	$ 659	449
Other Local:	$ N/A	N/A

* Available through EPA Grants Information Control System

C. Program Activities

Although the elements of New York's Clean Water Program have not changed over the last ten years, the program emphasis on each element has changed. In 1972, the New York State DEC was directing its resources toward the abatement of conventional pollutants. Today, control of toxic pollutants, disposal of wastewater treatment plant residuals and maintenance of treatment plants are the areas of priority concern.

1. Water Quality Planning

1972- New York has a long history of water planning. In 1965, the State Legislature authorized the Department to carry out a program of comprehensive sewerage planning. These plans, which were prepared for each NYS county, identified economic opportunities for inter-municipal solutions for the treatment of domestic sewage.

1982- In 1980, the last of over 200 local plans were prepared. Today's planning focus is on management of toxic and hazardous pollutants emanating from point and nonpoint sources as they affect surface waters or critical groundwater aquifers.

2. Water Quality Standards

1972- Historically, the Department has enforced standards of bacterial quality, dissolved oxygen and total dissolved solids.

1982- Recently, the Department initiated the use of ambient criteria for setting toxic limits on discharge permits. With experience, these criteria will be incorporated in surface water standards.

3. Monitoring

1972- In 1972, DEC used an extensive network of surface water ambient monitoring stations and intensive stream surveys for determining waste assimilation capacities and setting discharge limits. Limited benthic "species diversity" evaluations were also carried out. No organized groundwater quality monitoring was in place or contemplated.

1982- In 1976, monitoring of the water column, sediment, and fish flesh for priority toxic pollutants became an ever more important element of New York's monitoring program. Plans for monitoring toxics in groundwater are now being considered.

4. Nonpoint Source Implementation

1972- Nonpoint pollution problems were not inventoried in 1972 except for water quality impacts of CSO discharges and phosphorus loads.

1982- Since 1972, nonpoint source problems have been catalogued and several control programs implemented. Phosphorus detergents have been banned. Use of certain septic tank additives have been banned on Long Island. Pesticide applicators are licensed. We are developing legislation and technical guidance for chemical storage. "Cradle to grave" management of toxic wastes is being implemented under RCRA.

5. Operation & Maintenance/Training

1972- In 1972, a program to certify treatment plant operators was underway. Municipal operators were given pre-certification training and classroom training in specific advanced skills.

1982- Today's O&M training program contains the same elements as in 1972. However, more emphasis is placed on providing technical assistance for the operation of specific facilities. An industrial operator training and certification program is also under consideration.

6. Emergency Response

1972- In 1972, cleanup of petroleum and hazardous material spills was the responsibility of the discharger. Court actions were sometimes necessary to effectuate the proper cleanup actions.

1982- Today, there is more emphasis on spill prevention. Spill prevention plans and BMPs are in place for many industries particularly the petroleum industry. When accidental spills of pertroleum happen, New York has a spill response fund to implement cleanup actions where the discharger cannot be identified or when immediate action is necessary. In addition, we are developing protocols for the reasonable removal and treatment of spill related groundwater contaminants.

7. Discharge Permits

1972- Permits were written to control conventional pollutants in municipal and industrial discharges. During the early 70's, great strides were made in controlling conventional pollutants from paper mills.

1982- Today, permits are being issued for industrial toxic discharges. At least one municipality, with very significant industrial contributions is being required to meet toxic pollutant effluent limits. Sixty municipal programs for industrial pretreatment are also underway.

8. Enforcement

1972- In the late 60's and early 70's, many actions were taken against municipalities and industries reluctant to treat their wastewaters.

1982- Today, there is a greater emphasis on providing technical and financial assistance for pollution control. However, enforcement continues against the dischargers who remain truly recalcitrant.

9. Construction Grants

1972- In 1965 and again in 1972, New York State voters passed multibillion dollar bond acts to finance the construction of facilities for hundreds of municipalities.

1982- Construction of facilities for the remaining municipalities without adequate treatment capabilities continues.

VI. SITE-SPECIFIC SUCCESSES

Return of the Mohawk River

Since 1966, the United States Environmental Protection Agency (USEPA) and its predecessor, the Federal Water Pollution Control Administration, have awarded more than $100 million to 24 communities a 2 countywide area on and near the Mohawk River to construct secondary and tertiary wastewater treatment plants and other water pollution control facilities such as interceptor sewer systems, collection systems, force mains and pumping stations.

The USEPA and the New York State Department of Environmental Conservation can now report that all projects have been built and are in operation. Only two plants are currently unable to meet prescribed effluent limits and need additional upgrading of treatment facilities. These facility improvements are scheduled for completion in the mid-1980's.

Throughout the 1970's and into the 1980's, fishing has steadily improved on the Mohawk River. Both large and smallmouth bass have come back and it is not uncommon for fishermen to catch 30 to 40 rock bass in a few hours. Bass close to 20 inches long and walleye of nearly 30 inches have been caught. Northern pike have returned, and insects such as the delicate mayfly have reappeared along the river. Reports of rainbow and brown trout, two of the most pollution-sensitive of all fish, have been noted. The Mohawk is becoming an excellent fishery.

New York State DEC operates a water quality surveillance network with monitoring stations along the Mohawk to show long-term trends in water quality. Dissolved oxygen levels, one of the analyses conducted on a routine basis, provides an overall indication of the health of the stream. Since the 1960's, dissolved oxygen levels have steadily increased on the middle and lower reaches of the river and are well within ranges that would be considered good quality. Studies of biological organisms in these sections have shown increasing diversity of species - an indication of the improved health and stability of the river environment.

The positive effect of the Clean Water Program has paid off, not only in terms of far cleaner waters, but in the renewed enthusiasm shown by sportsmen, nature lovers, and the general public for the river as a natural asset and recreational stream. It is no longer necessary to bypass the Mohawk in order to enjoy boating, canoeing and fishing or to watch the wildlife that thrives along wetlands and waterways.

The river today teems with people, both on the water and along it shores. On sections above and below Schenectady, boat access sites have been built and bike/hike paths have been constructed along the shores and on the old Erie Canal towpath. On a warm summer day it is not uncommon to see canoers, fishermen, pleasure boats, and water skiers sharing the river while hundreds more enjoy the bicycle path.

Pollution Control on the Susquehanna

The New York State reach of the Susquehanna River below Binghamton has generally returned from a long era of decline.

Its rejuvenation is due to the concerted effort of Federal, State and local governments to construct the necessary municipal wastewater treatment plants. An $11 million Binghamton/Johnson City treatment plant was finished in 1975 and a $4 million facility at Endicott went on the line in 1972.

And now monitoring stations all along that reach of the Susquehanna are reporting back good news of cleaner water.

Data at the Vestal monitoring station shows that oxygen depletion has been cut by half, and potentially dangerous bacterial contamination reduced 10-fold, from a total fecal coliform count of 10,000 per liter of water to 1,000 and frequently less. Reduced total suspended solids have also been recorded.

Data taken at the Smithboro station farthest downstream from the new municipal treatment plants shows marked decreases in coliform bacteria counts.

Fish such as walleyed pike, smallmouth bass, and muskellunge are back in numbers. That stretch of the Susquehanna, once mired in pollution, is showing the symptoms of a healthy river again.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Substantial progress has been made in controlling pollution over the last two decades. The challenge to public officials for the 80's and 90's will be to maintain this progress and to address those remaining problems associated with point and nonpoint source control.

Over $7 billion has been invested in wastewater disposal works over the past two decades. This has resulted in water quality restoration for 64% of the waters in the State impacted by wastewater discharges. If this progress is to be sustained, it will be necessary to assure that disposal facilities constructed over the past 20 years are properly operated, maintained and rehabilitated during 80's and 90's. Water quality planning studies conducted under Section 208 show that local sewer agencies and local governments are unable to fully meet these responsibilities. New York is concerned that any neglect of these facilities will seriously jeopardize public investments in environmental controls.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_____ - Groundwater resource quality protection or supply assurance.

_____ - Identification and control of toxic pollutants from industrial and non-point sources.

_____ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_____ - Pollution arising from abandoned industrial and/or mining facilities.

In the early 70's, toxics in the State's waters became a major concern. While water quality problems from conventional wastewater discharges were being eliminated, toxics in groundwater, surface water and aquatic life were being discovered. Today, there are 542 miles of the State's waters contaminated with toxics not counting Lake Ontario where a health advisory on eating Ontario fish have been issued. And there is a growing realization that toxics are even more pervasive and widespread than what is known to date. Pretreatment programs, permits for toxic discharges and BMPs for toxic controls will be necessary in the 80's to prevent further degradation by toxic chemicals.

Groundwater is a critical component of New York's water resource. Six million people in the State rely on groundwater as their sole or primary source of water supply. We are beginning to see evidence that historically clean and abundant ground water supplies are in fact victims of past neglect. About 60 wells have been ruled by the State Health Department as unfit water supplies. Quality problems identified to date include chemical contamination from agricultural pesticides, misuse of consumer products, poor chemical and petroleum storage practices, urban runoff and nitrate contamination by septic tank systems. Thousands of sources of contamination are located directly over the State's critical water supply aquifers.

These can be broadly grouped as nonpoint sources but other more conventionl nonpoint sources also effect the waters of New York State. Silt and erosion limits the quality of many water supplies and fisheries. Nutrients from upland areas stimulate algal blooms and cause concomitant odors in drinking water supplies and reduce aesthetic quality of recreation waters. Even the pristine waters of the Adirondacks are impacted; by acid rain and natural processes which place limitation on the fishery and water uses for production of quality paper products.

Types of nonpoint source water quality impacts include:

Water Supplies
- tastes and odors
- clogging of water treatment plant filters
- higher treatment costs (chlorine, coagulants)

Recreation
- weeds/boating
- turbidity/bathing
- odors/aesthetic

Fisheries
- fish kills
- decrease in productivity
- habitat loses

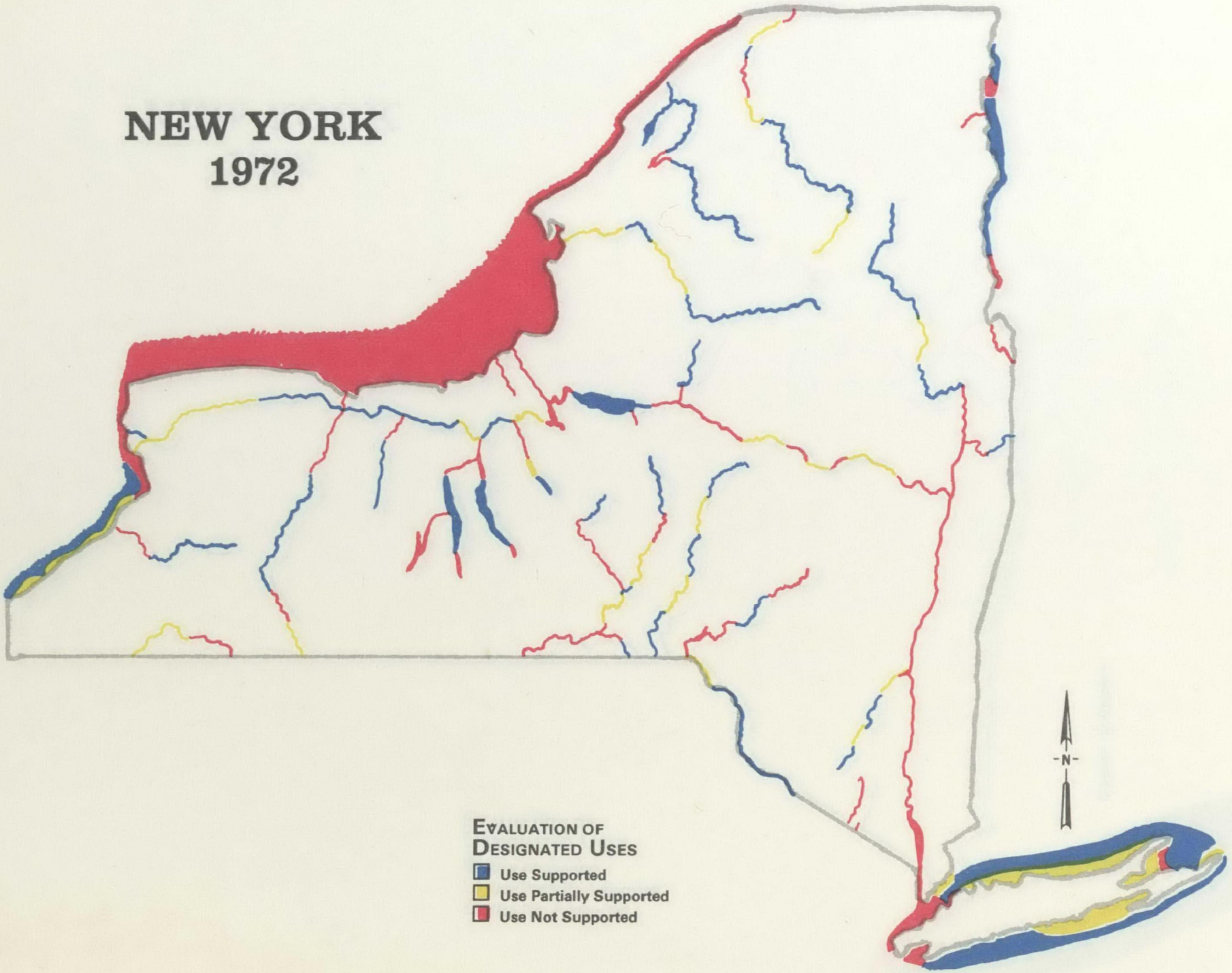
Not all nonpoint source related problems can be practically controlled. However, many of the nonpoint problems are man-induced, exceed reasonable levels of tolerance and can be partially mitigated through the application of good management and conservation practices (best management practices [BMPs]).

AGENCY PREPARING REPORT: New York State Department of Environmental Conservation Division of Water

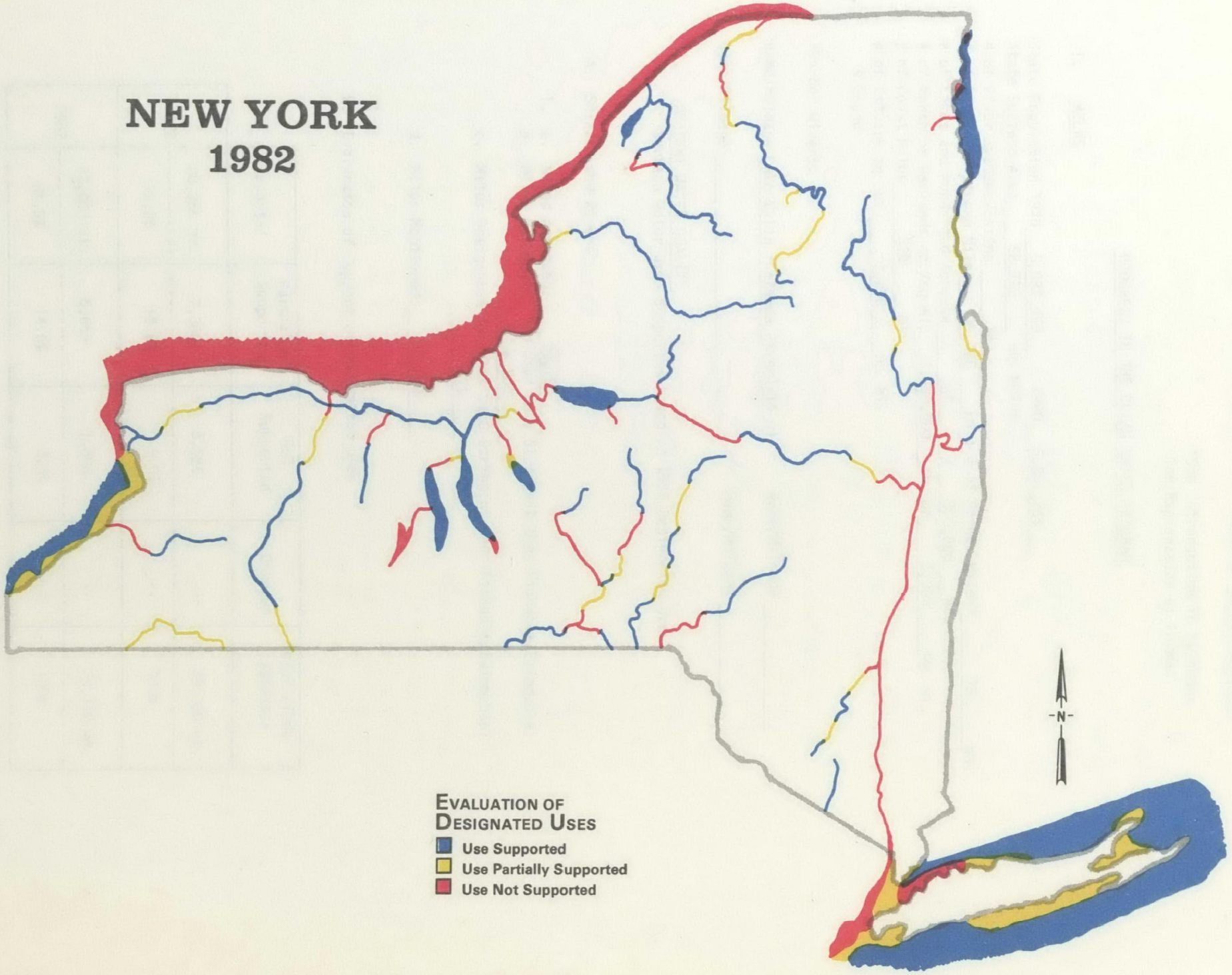
CONTACT PERSON & PHONE #: Mr. Dan Barolo, (518) 457-6674

DATE: September 1, 1983

NEW YORK
1972



NEW YORK
1982



State of North Carolina*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 5,082,059 1980 5,881,766
State Surface Area 52,712 sq. miles
# of River Systems/Basins 16
# of River and Stream Miles 39,150 mi.; # of Border Miles* 15 mi.
# of Lakes and Ponds and Acreage 88 / 320,000 ac.
# of Marsh or Wetlands ac./sq.mi. 3,380,000 ac. or 5,300 sq. mi.
# of Coast Miles 320 mi.
# of Estuary & Sound sq. mi. 3,200 sq. mi.

*Border Rivers:

Name/Mileage Lake Wylie (Catawba River)/15 mi Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

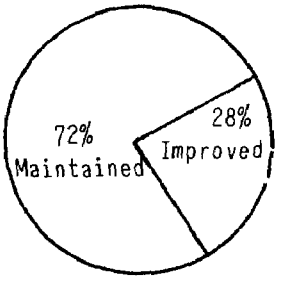
1. a. Miles Assessed: 39,150
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 6,540
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 131
   d. Miles Monitored: 13,350

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	28,265 mi.	7,360	3,525	--	39,150 mi.
	72.2%	18.8%	9.0%	--	100%
1982	32,083 mi.	5,669	1,398	--	39,150 mi.
	81.9%	14.5%	3.6%	--	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	7,067	3,818
Miles Degraded:	0	0
Miles Maintained:	28,265	
Unknown:	--	

B. Lakes and Reservoirs

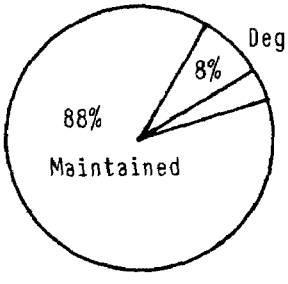
1. a. Acres Assessed: 310,300
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 160,000
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 295,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	265,123 ac.	30,877	0	--	296,000 ac.
	89.6%	10.4%	0	--	100%
1982	270,123 ac.	40,177	0	--	310,300 ac.
	87%	13.0&	0	--	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	200	12,450
Acres Degraded:	1,687	21,750*
Acres Maintained:	274,213	
Unknown:	--	

*Includes 14,300 for new reservoir.

C. Estuaries and/or Oceans

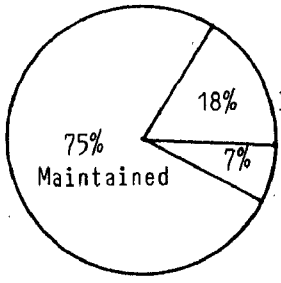
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	3,200	2,935
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	0
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	0
	d. Sq. Mi./Miles Monitored:	2,400	2,200

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	2,129 sq. mi.	1,050	21	--	3,200 sq. mi.
	66.5%	32.8%	0.7%		100%
1982	2,691 sq. mi.	500	9		3,200 sq. mi.
	84.1%	15.6%	0.3%	--	100%

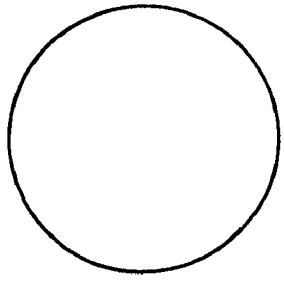
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	0	562
Sq.Mi.Degraded:	250	0
Sq.Mi.Maintained:	2,388	
Unknown:	--	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

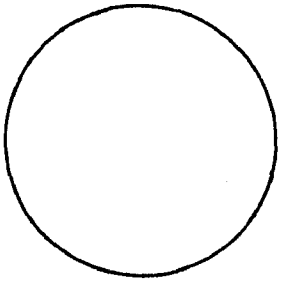
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

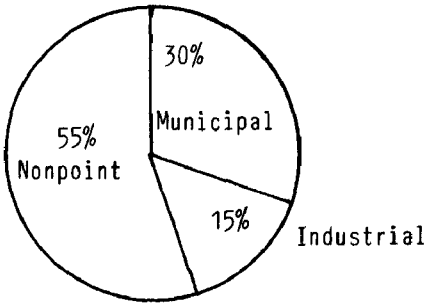


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

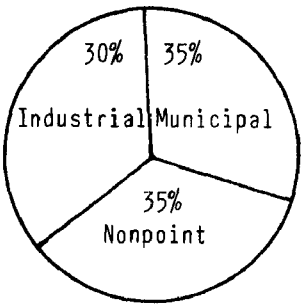
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

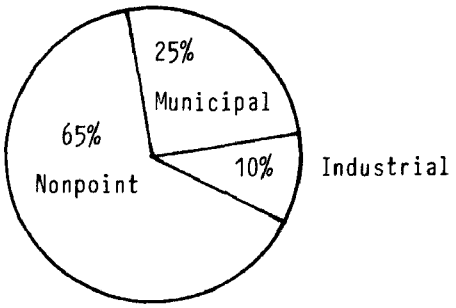
a. Streams and Rivers



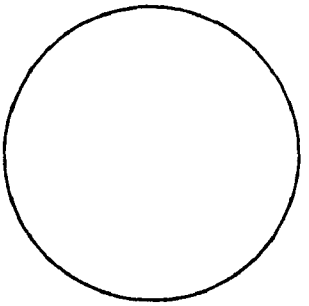
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			DO, Nut.
Industrial		X	X		X	X			DO, Toxics
Non-Point	X		X			X	X		Nut., Turb.
Other (inc. natural)						X*			Toxics

*High background levels of metals such as mercury, iron and copper as well as high natural levels of phenols.

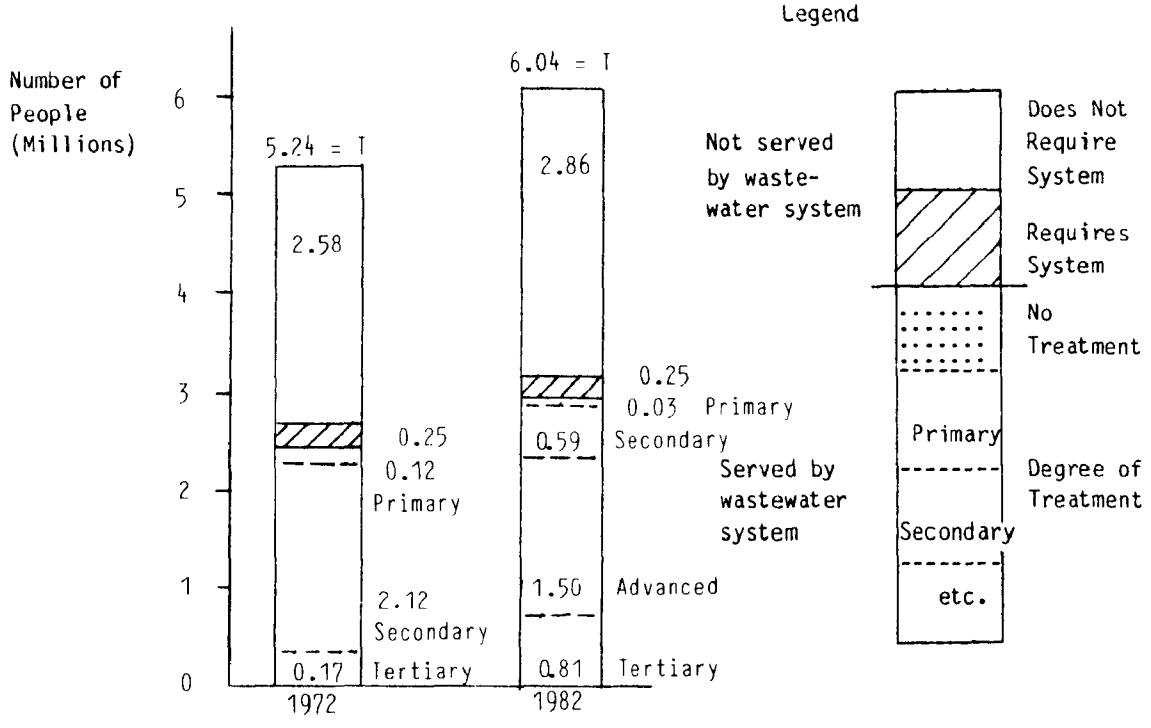
*Number of Stream/River Miles Affected by Toxics:	960
*Number of Lake/Reservoir Acres Affected by Toxics:	22,630
*Number of Estuary Square Miles Affected by Toxics:	200
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	---

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

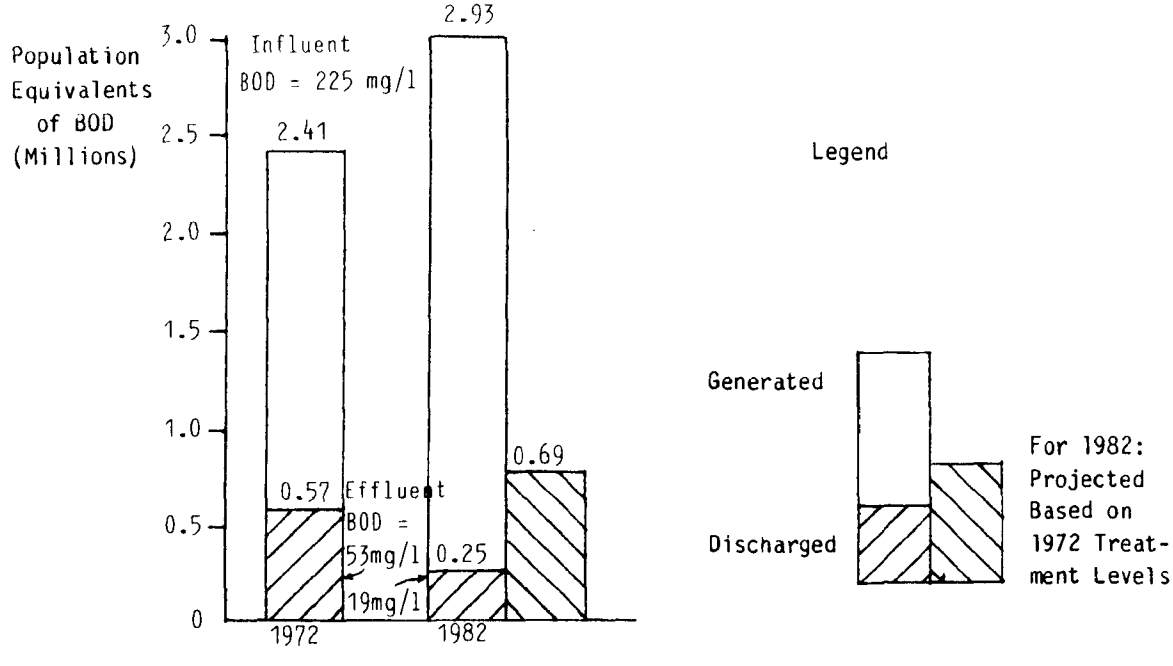
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

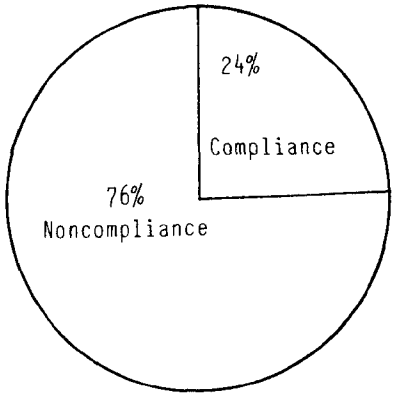
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	115	28	93	
Facilities Meeting 1982 Permit Requirements+	28	22	81	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	24	79	86	351
Percentage of Flow For Which Requirements Met+	20	84	79	
Facilities Needing Upgrading	90	28	12	

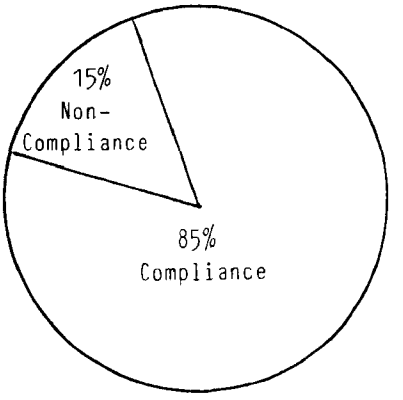
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

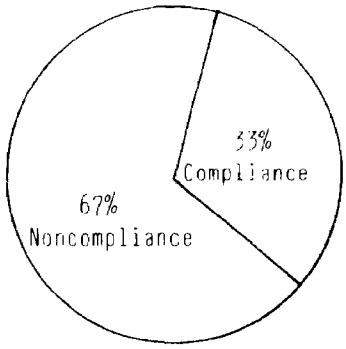
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	159	7	190	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	53	6	179	2,013
Percentage of Facilities for Which Requirements Being Met	33	86	94	
Percentage of Flow for Which Requirements Met+	60	0.6	98	

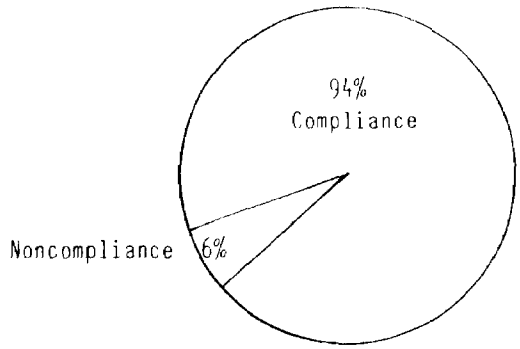
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



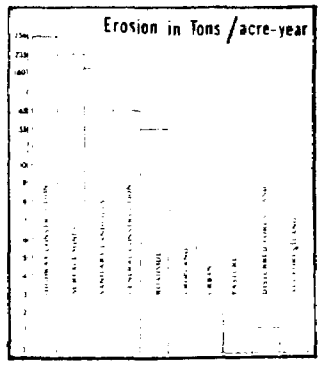
1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

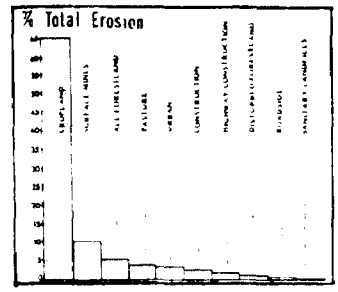
The Water Quality Management Plan for North Carolina, developed as part of the 208 planning effort, identified sediment as the most widespread water quality problem in the State. Sediment has severe physical, biological as well as chemical impacts in the streams, lakes and estuaries of North Carolina. Physical problems include turbidity, filling of lakes and navigable waters, increasing water treatment costs and aesthetic problems. Biological impacts include reduced light penetration, reduction in habitat for fish food organisms, clogging of the gills of fish and other organisms, etc. Sediment is also associated with nearly all other nonpoint source pollutants. A large portion of the nutrients entering waters in runoff as attached to sediment (particularly phosphorus). Toxic metals in urban runoff are primarily bound to sediment. The U.S. Soil Conservation Service has estimated the erosion rate for various types of land use as well as estimated the sources of total erosion.

Average Annual Rate of Erosion for Various Categories of Land Use in North Carolina*



*Statewide average erosion rate determined by the U.S. Soil Conser[illegible] (USDA, 197[illegible]

Percent of Total Erosion in North Carolina by Land Use Category*



*Gross annual erosion in North Carolina is estimated by the U.S. Soil Conservation Service to be [illegible],148,136 tons. These categories account for in excess of 83% of total erosion (USDA, 197[illegible]

It must be noted that this information is total erosion and not sediment yield to waterways. However, it does provide an indication of the impact of various land uses.

Several demonstration studies have been conducted for various best management practices (BMPs) to reduce nonpoint source pollution. N.C. Agricultural Research Service has approximately 13 test watersheds throughout the State where BMPs such as grassed waterways, buffer strips, minimum or no-till, soil testing and strong producer educational programs have been utilized. In addition, a five county regional planning group has demonstrated the effectiveness of various alternatives to conventional septic tank/drainfield systems; the Division of Forest Resources has two study sites for various forestry BMPs; and the Division of Environmental Management (DEM) conducted a three year study on a residential and central business district sites on the effectiveness of street sweeping in improving urban runoff quality. DEM biologists have conducted several evaluations on the instream benefits of nonpoint source BMPs.

The Water Quality Management Plan for North Carolina outlined strategies to control nonpoint source pollution. A "lead agency" concept is being utilized for program implementation. Agencies having management responsibilities over activities directly impacting water quality are considered lead agencies. A process called "management agency designation" is being used to clearly define the responsibilities of these lead agencies. This process also establishes a tracking mechanism to evaluate the success of BMP implementation programs. While many agencies have incorporated water quality concerns into their ongoing programs, this process formally establishes a line of communication to the Governor regarding water quality issues. It also ensures that the significant momentum generated over the last several years is maintained into the future.

At present, progress for agriculture and silviculture are voluntary programs; however, cost incentives are being utilized in some critical areas. There are regulatory programs for control of sediment from mines and construction activities. An urban runoff control program is being formulated.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	S/W	I/W	S/L	S/L	M/L		
Primary Pollutants	M, Nut. SS, C	SS, Nut. P, C	SS Nut.	SS	SS	Sal, Lo flow		

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The N.C. Division of Environmental Management has a goal of compliance for all permitted dischargers. DEM negotiates compliance through use of technical assistance, noncompliance notification, conferences, administrative orders, consent order and civil penalties. Municipal facilities are not allowed to accept additional wastewater (sewer connections) if they are not adequately treating this wastewater. Non-compliance facilities must request permission for sewer connections, and these requests are granted only with an agreement on means of achieving compliance. Enforcement actions such as civil penalties are generally reserved for emergency situations where there is quantifiable environmental damage such as fish kills. Issuance of civil penalties is an administrative action. Judicial actions are necessary only to collect civil penalties.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	30
Number of Pre-Administrative Actions:	30
Number of Administrative Actions:	14*
Number of Judicial Actions:	1

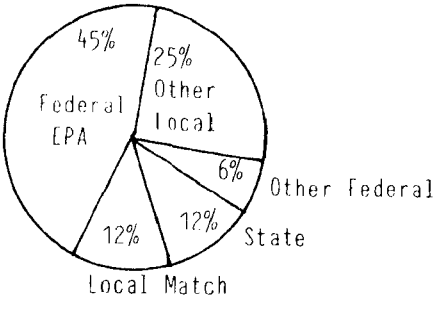
*Note: Moritoriums are imposed by Statute

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,296 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 582	Million
Other Federal:	$ 77	
State:	$ 154	
Local Match:	$ 154	
Other Local:	$ 329	

C. Program Activities

The following is a listing of objectives of the Water Quality Program by Program Area:

PERMITTING - A. Operation and maintenance of an effective discharge permit system and water quality certification program in a manner as to provide enforceable controls on wastewater discharges necessary to protect and enhance water quality. B. Review and processing of plans, specifications and other supporting documents for the construction of wastewater collection, treatment or disposal facilities to assure adequate protection of water in a cost effective manner. C. Coordination of permitting activities with other State and Federal agencies.

COMPLIANCE - A. Implementation of a pretreatment program to assure protection of local wastewater treatment facilities and maintenance of receiving water quality. B. Conduct compliance inspections/monitoring activities necessary to meet program requirements and provide technical assistance to wastewater operation whenever possible. C. Development and maintenance of a computer based compliance tracking system.

MONITORING AND TECHNICAL SERVICES - A. Continue operation and evaluation of the ambient water quality monitoring program to provide adequate information to assess water quality conditions of the State's waters. B. Conduct surveys, special studies, and data evaluations for specific water quality problems. C. Perform modelling analyses and waste load allocations for proposed wastewater dischargers. D. Continue data evaluation to define characteristics and develop appropriate management practices for urban stormwater.

OPERATOR TRAINING - A. Conduct schools and special courses to train all levels of wastewater treatment plant (WWTP) personnel. B. Administer examinations and certify WWTP Operators at all grade levels. C. Continue evaluation and validation of the WWTP examination process.

PLANNING - A. Develop and implement additional strategies for control of water pollution from nonpoint and point sources. B. Work with state agencies designated for various nonpoint control programs to optimize program implementation. C. Continue evaluation of the trophic conditions of the impoundments of coastal waters of the State while working with all local officials adjacent to eutrophic waters to ensure correct and equitable solutions to these problems. D. Insure optimum utilization of time and resources for delivery of the water quality program. E. Plan water quality activities to provide timely and accurate public understanding of important issues.

PUBLIC PARTICIPATION - A. Continue to promote the Stream Watch Program to allow citizen involvement in water quality protection and improvement. B. Provide timely information for program activities at various public functions (eg. State Fair).

VI. SITE-SPECIFIC SUCCESSES

I. Chowan River Restoration Project

The Chowan River is located in Northeastern North Carolina and has been suffering from severe blooms of the blue-green algae since the early 1970's. This river is essentially a freshwater estuary which begins at the NC/Virginia stateline at the confluence of the Blackwater and Nottoway Rivers. It is a scenic river lined with Cypress trees and numerous small creeks and has historically supported excellent commercial and sport fishing. Fishing success and the aesthetic qualities of the Chowan River have been declining since the onset of the algal blooms.

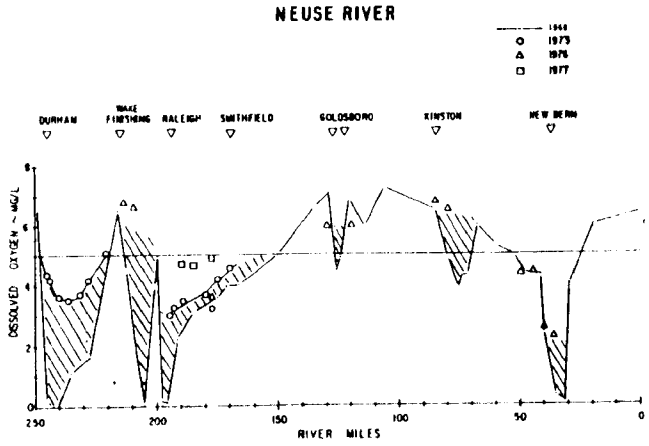
The State of North Carolina initiated research efforts on the algal bloom problems following severe blooms in 1972. A cooperative effort with the State of Virginia to develop a management plan and control program was initiated in early 1979 following massive surface blooms with fish kills during the summer and fall of 1978. North Carolina completed a management plan in June 1982 indicating the required reductions in nitrogen and phosphorus from the entire watershed (Virginia and North Carolina). The plan also indicated how North Carolina could achieve their portion of the required reductions through a program of municipal and industrial point source controls and best management practices for agricultural runoff. All municipalities in the North Carolina portion of the Chowan River basin will have land application systems for wastewater by 1986 which will eliminate nutrient inputs from these sources. North Carolina industries contributing nutrients to the river have either substantially lowered their nutrient inputs or ceased operation. State and federal agricultural agencies are pushing an aggressive program for voluntary BMP implementation in the basin by providing cost-sharing money, educational programs, demonstration farms and technical assistance.

The problems of the Chowan River are not yet solved. About 75 percent of the watershed lines in Virginia and their portion of the management plan will not be completed until September 1983. The Chowan River continues to suffer from declining fishing success and severe blue-green blooms even during the summer of 1983. However, the efforts in the North Carolina watershed are beginning to substantially reduce nutrient inputs to the river. This joint point and nonpoint control program is being used as a model for other areas of the State. With a similar effort in the Virginia portion of the Chowan River watershed, the eutrophication problems will eventually be minimized.

II. Neuse River Dissolved Oxygen Levels

As can be seen in Section III.A. 1. and 2., there have been large improvements in the treatment of municipal wastewater in North Carolina since 1972. The estimated average effluent carbonaceous BOD concentration in 1972 was 53 mg/l and this value has been decreased to approximately 19 mg/l in 1982. The Neuse River is one system where the improvements in municipal wastewater treatment have had a marked impact on instream dissolved oxygen levels.

During the late 1950's and early 1960's, there were several locations along the Neuse River where dissolved oxygen (DO) approached 0 mg/l during low flow periods of the summer and fall.



The DO sags occurred downstream from major municipalities such as Durham, Raleigh, Goldsboro, Kinston and New Bern. An industrial discharger, Wake Finishing Company, also had a large impact on the river. By 1973, many of the upstream dischargers were capable of at least a secondary level of treatment. Advanced wastewater treatment facilities have been put into operation at many municipalities since 1973.

DO levels in the Neuse River have improved to the point that levels below the state standard of 5 mg/l are very rare. Some additional upgrading of wastewater treatment facilities is still necessary in the Neuse River Basin. Eutrophication problems resulting from point and nonpoint source nutrient inputs are also just being addressed. However, the upgrading of wastewater treatment along the river has served to dramatically improve the Neuse River water quality.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

During the 1970's, the major emphasis of water pollution control programs in North Carolina has been to minimize pollution from point source dischargers. Nearly 1.3 billion dollars has been spent on upgrading municipal wastewater facilities in North Carolina from 1972 to 1982. This expenditure has resulted in a substantial improvement in effluent quality (See Section III.A.).

There is still a need for additional funding primarily for many smaller municipal facilities. Substantial efforts have been expended in order to permit industrial dischargers during the early 1970's. Approximately percent of all industrial dischargers were in compliance with these discharge permits in 1982. Since 1977, nonpoint source pollution problems have been a particular concern, particularly erosion programs throughout the State and eutrophication of coastal waters. Programs have been developed to deal with various nonpoint source of pollution; however, implementation of these programs requires additional effort.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
X sources.
X - Municipal wastewater plant operation, maintenance, and rehabilitation.
_____ - Pollution arising from abandoned industrial and/or mining facilities.

Coastal waters of North Carolina are exhibiting severe signs of eutrophication, organic pollution, bacterial contamination, and excessive freshwater inflow. Developing and implementating appropriate management strategies for point and nonpoint source pollution to these waters is a high priority. Separate standards for primary nursery areas are being considered as one approach to the coastal problems. Eutrophication problems may necessitate additional requirements such as nutrient removal from point source discharging.

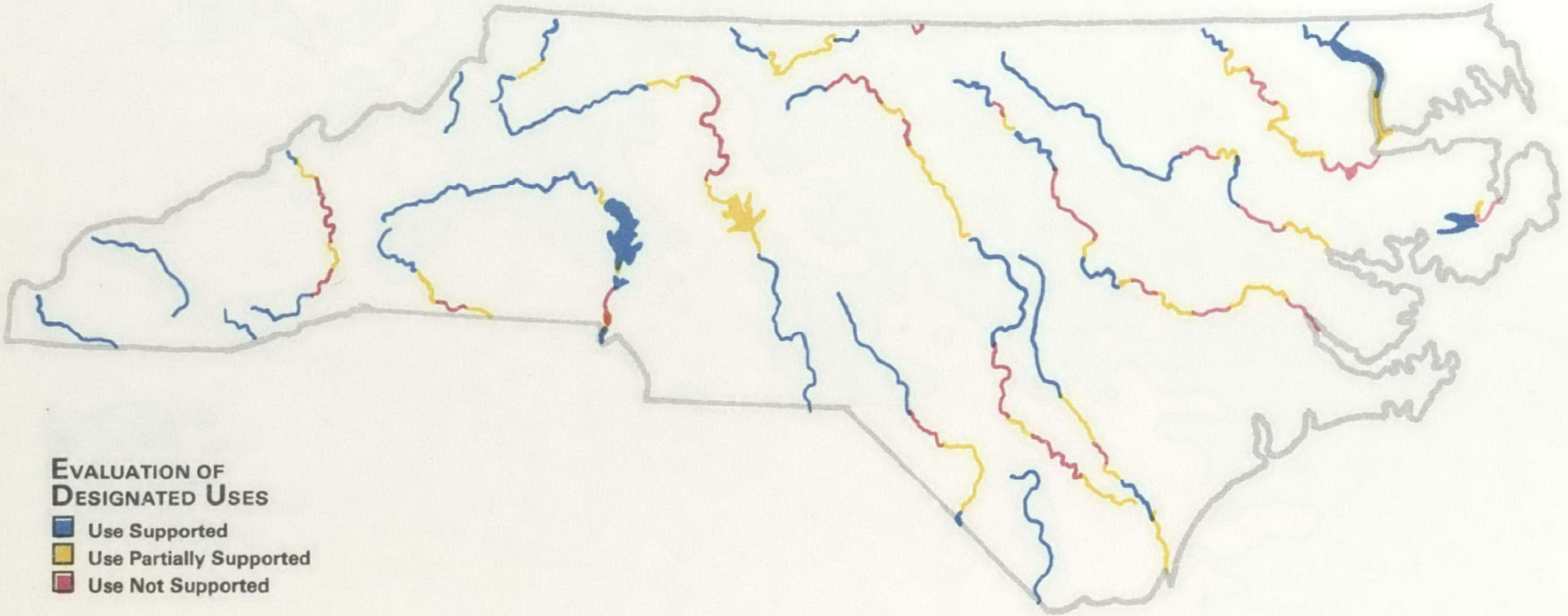
Implementation of nonpoint source control programs is necessary to reduce sediment inputs to the State's waterways as well as minimize other problems such as eutrophication of inland resources. Increased erosion control is considered the cornerstone of an effective nonpoint source control program.

The entry of toxic materials to the State's waters is an area of current and future emphasis. Increased toxic evaluation capabilities through the use of a mobile bioassay laboratory is allowing a comprehensive approach to evaluating industrial and municipal (with contributing industries) effluents. An effluent screening test procedure is being utilized to optimize the use of the mobile laboratory.

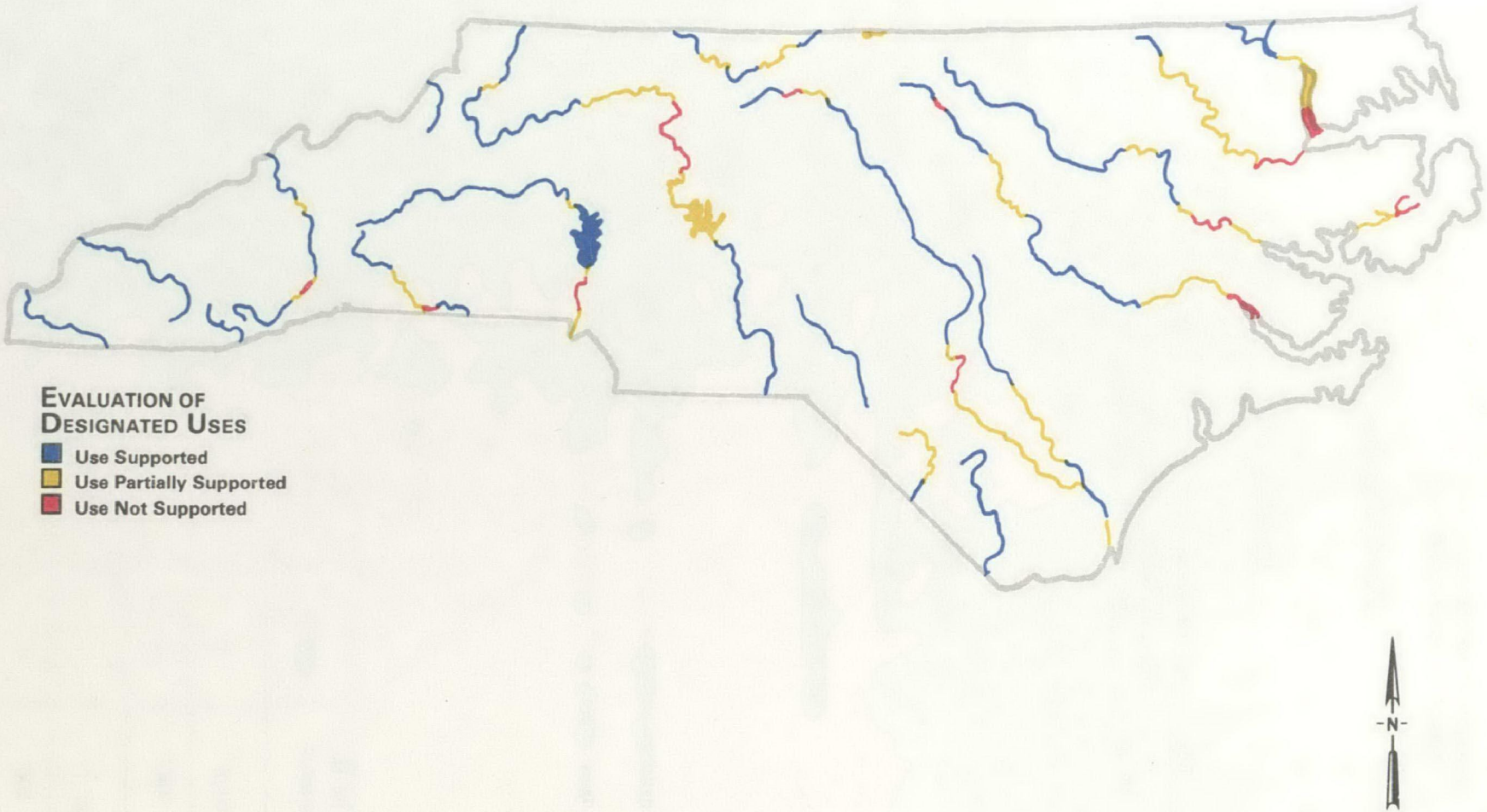
Despite the improvement in wastewater treatment in the last decade, wastewater discharges are still a significant cause of water quality degradation. There are nearly 1,200 miles of degraded stream segments in North Carolina and much of this degradation is at least partially attributable to inadequately treated wastewater. Funds for upgrading wastewater facilities are still required in order to minimize degraded segments.

Compliance monitoring activities will be directed toward non-compliance facilities by a priority approach. Facilities are being targeted for standard inspection to provide maximum assistance and on-site evaluation. This approach allows the program to increase the number of "in-compliance" facilities and to increase State personnel visibility among all facilities to encourage maintenance of compliance and proper operation.

AGENCY PREPARING REPORT: Division of Environmental Management
N.C. Dept. Natural Resources & Comm. Develop.
CONTACT PERSON & PHONE #: Bill Kreutzberger (919) 733-5083
DATE: August 31, 1983



NORTH CAROLINA
1972



NORTH CAROLINA
1982

State of North Dakota*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 617,761 1980 652,695
State Surface Area 70,665 sq. miles
# of River Systems/Basins 4
# of River and Stream Miles 5,109 mi.; # of Border Miles* 428 mi.
# of Lakes and Ponds and Acreage 165 / 862,375 ac.
# of Marsh or Wetlands ac./sq.mi. 1.5 million ac. or N/A sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Red River/400 Name/Mileage N/A

Name/Mileage Bois DeSioux/28 Name/Mileage N/A

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

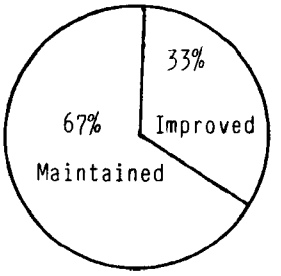
1. a. Miles Assessed: 5,109
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 5,109

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2,807 mi.	2,302	0	0	5,109 mi.
	55 %	45 %	0	0	100%
1982	4,518 mi.	591	0	0	5,109 mi.
	88 %	12 %	0	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	1,711	0
Miles Degraded:	0	0
Miles Maintained:	3,398	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 850,000
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 770,000

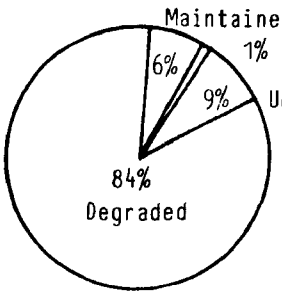
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
*1972	ac.				ac.
	%	No Data Available			100%
1982	770,000 ac.	0	0	80,000	850,000 ac.
	90 %	0	0	10 %	100%

*No data available

3. Changes In and Within Use Support 1972 - 1982

By Percentage

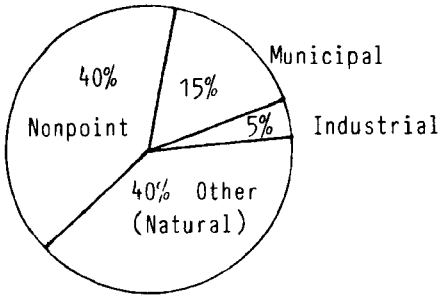


	Within Category	Change in Category
Acres Improved:	3,500	Unknown
Acres Degraded:	716,500	Unknown
Acres Maintained:	50,000	
Unknown:	80,000	

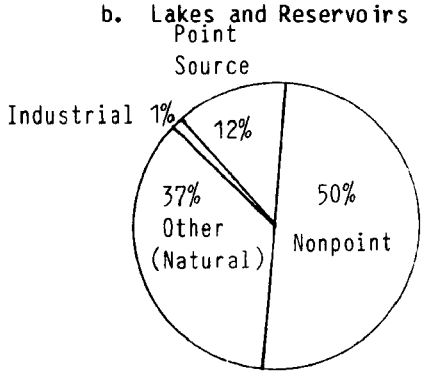
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

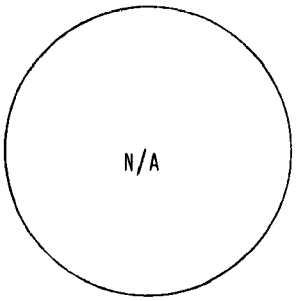
a. Streams and Rivers



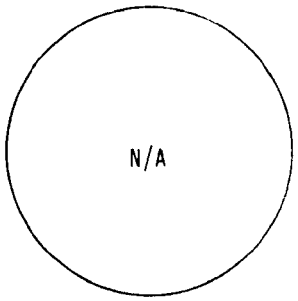
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X		X			Ammonia			
Industrial									
Non-Point	X		X						X
Other (inc. natural)			X				X		

*Number of Stream/River Miles Affected by Toxics: 25

*Number of Lake/Reservoir Acres Affected by Toxics: 5,000
(Fish kills resulting from suspected unionized ammonia toxicity)

*Number of Estuary Square Miles Affected by Toxics: N/A

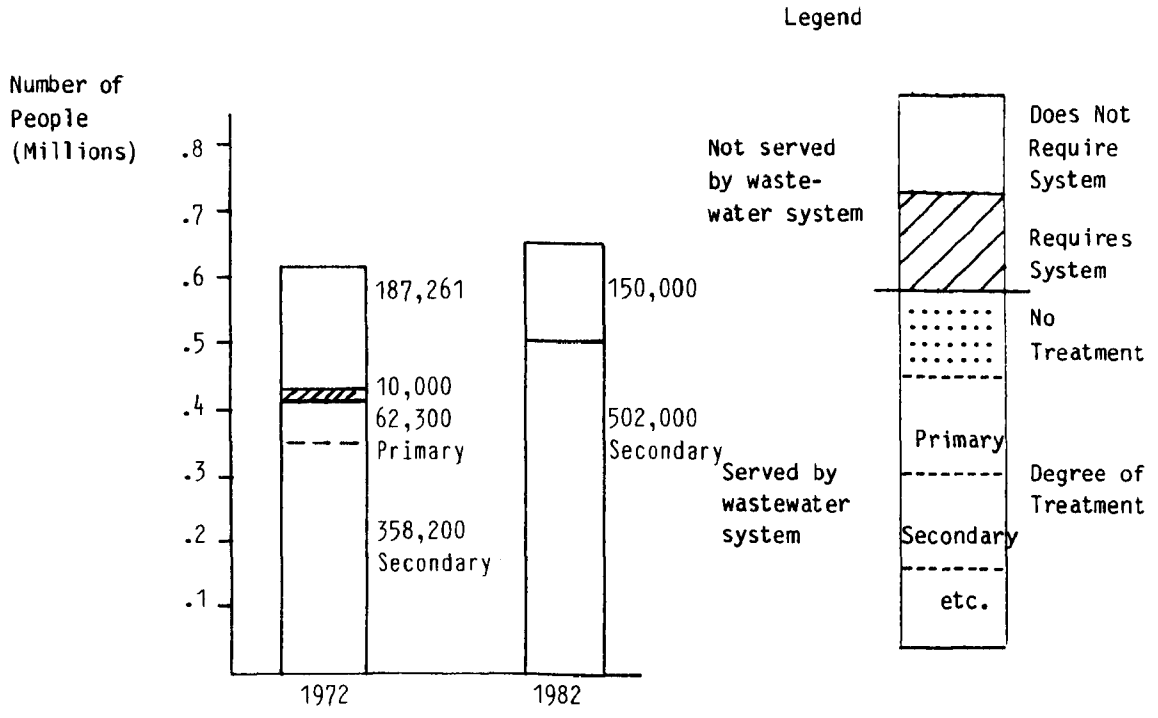
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

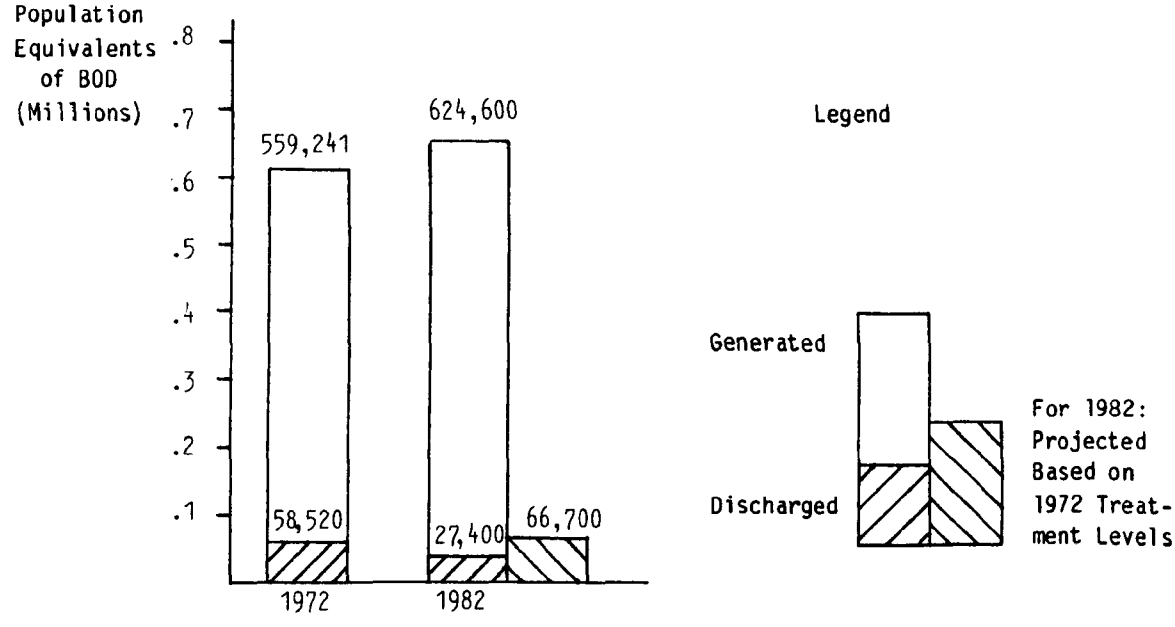
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

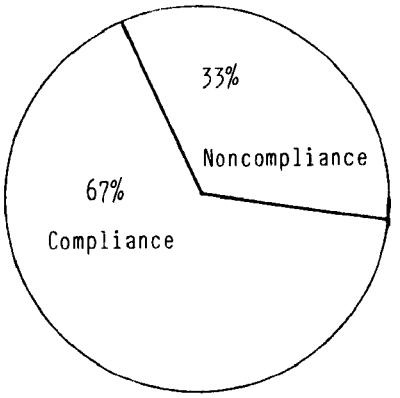
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	33	10	23	
Facilities Meeting 1982 Permit Requirements+	22	9	21	Total Permits in Effect in 1982 284
Percentage of Facilities for Which Requirements Being Met	67%	90%	91%	
Percentage of Flow For Which Requirements Met+	27%	88%	95%	
Facilities Needing Upgrading	20	10	5	

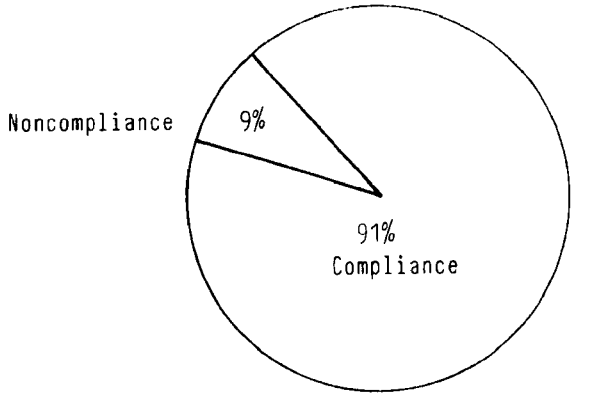
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

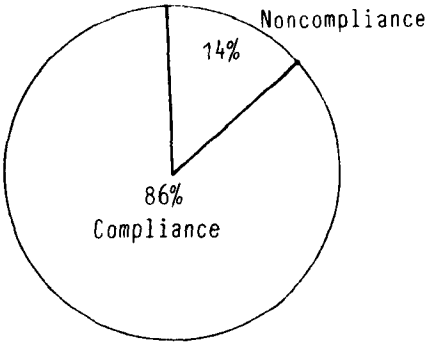
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	14	0	25	Total Permits in Effect in 1982 83
Facilities Meeting 1982 Permit Requirements+	12	---	23	
Percentage of Facilities for Which Requirements Being Met	86%	---	92%	
Percentage of Flow for Which Requirements Met+	99.9%	---	99.9%	

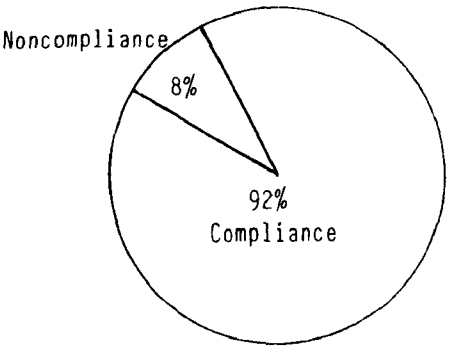
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

In North Dakota, the nonpoint sources of pollution that were identified in the 208 plan are agriculture, surface mining and land reclamation, construction, irrigation, and silviculture. The water quality problems resulting from these nonpoint sources are nutrients, salinity, suspended sediments, and fecal coliform. The nonpoint source program has identified agriculture as the major nonpoint problem and has stressed the control of pollution from agricultural activities through a volunteer program with emphasis on education, technical and cost share assistance, research, and monitoring. The nonpoint programs are implemented on an individual hydrologic unit basis with initial emphasis on improvement and protection of water quality in North Dakota lakes and impoundments.

To date, there are five hydrologic units implementing measures to improve water quality in the individual lake or impoundment. Intensive monitoring is also underway in tnese units to determine the effects of best management practices on runoff quality. Monitoring has shown improvements in implemented areas but not enough monitoring has been done at this time to calculate true percentages of improvement.

With the reduction in 208 monies, North Dakota is depending, to a great extent, on a statewide educational program stressing minimum and no-till cropping with the hopes of keeping the spring runoff on the land and reducing the nutrient rich waters to our lakes and reservoirs.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	M/W	N/A	I/L	I/L	I/L	N/A	I/L
Primary Pollutants	M,Nut	Nut.C.	N/A	SS	SS	Nut.	N/A	M,P

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

North Dakota's initial concern is to eliminate or at least minimize any pollution as quickly as possible. To this end, we determine the source and work with the responsible party. First, we seek voluntary compliance. Appropriate remedial measures are identified and an adequate time frame for their completion is determined. As a final step, an administrative order is drawn up outlining these items. If the requirements of the order are not properly followed or stronger enforcement action is deemed appropriate, Complaints, Consent Agreements, Orders for Judgment and Judgments may be filed. The severity of the pollution, the degree of cooperation provided by the responsible party, any costs the party may have incurred during cleanup, and any costs the party may incur to permanently eliminate the pollution source are all items which are considered before the extent of legal action is determined.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

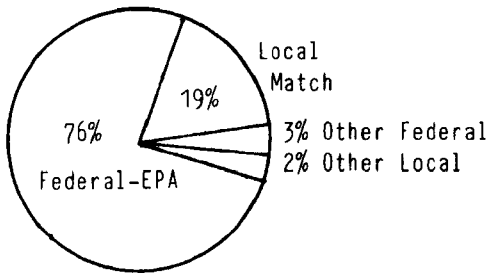
Total Number of Facilities:	5
Number of Pre-Administrative Actions:	3
Number of Administrative Actions:	---
Number of Judicial Actions:	2

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 103.5 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 78.5 Million
Other Federal:	$ 3.5
State:	$ 0
Local Match:	$ 19.5
Other Local:	$ 2.0

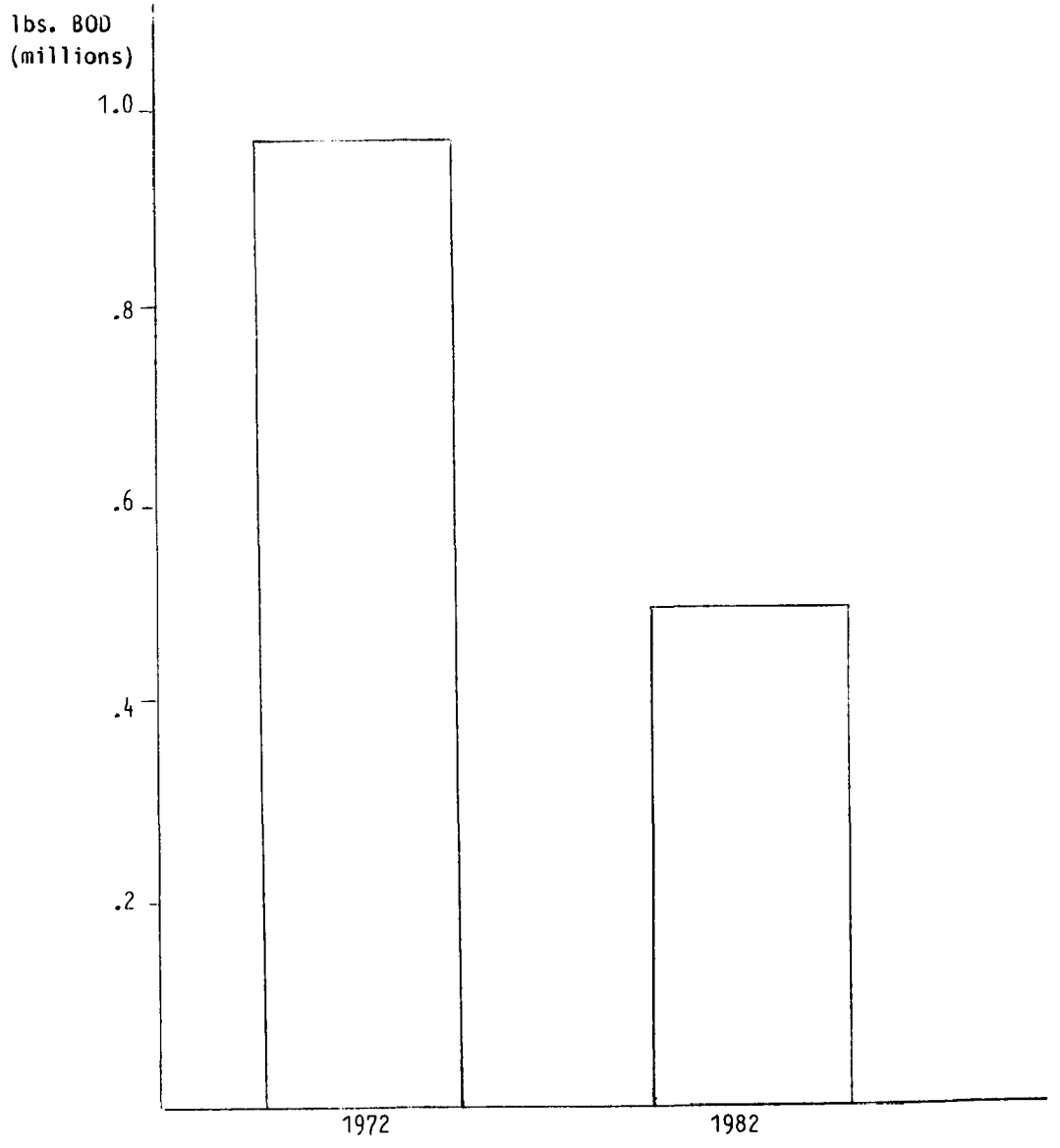
C. Program Activities

There is much more awareness and great steps made in the environmental programs in North Dakota as in other states in the nation in the past years. Some programs that have advanced environmental control in North Dakota are the 208 planning program, the ambient water monitoring program, the discharge permitting program, clean lakes program, and the municipal construction grant program. In the past ten years, a combination of the 208 planning process, the ambient stream monitoring, and the clean lakes program has enabled North Dakota to identify and prioritize water quality problem areas. This included identifying the sources of pollution and also the corrective methods to be implemented to solve the problems. As a result, there are four lake and watershed improvement programs and one site specific or intensive water monitoring program in progress on a river reach below a major city's discharge.

In the past ten years, the discharge permitting program has given the State of North Dakota the necessary authority to regulate and inventory the municipal and industrial discharges within the State of North Dakota. North Dakota presently has primacy in the NPDES permit program, the construction grant program, the underground injection control program, and the safe drinking water program. The above mentioned programs have been very instrumental in improving and controlling all point discharges within the state and the plans for the future are to maintain this level of excellence in the point source area and put major emphasis on nonpoint pollution within the State of North Dakota.

VI. SITE-SPECIFIC SUCCESSES

The Red River of the North, which forms the eastern border of North Dakota, transverses the most heavily populated area of the state; therefore, as expected, municipal discharges have a significant impact on the water quality of the Red River. The following bar graph demonstrates the improvements made in wastewater treatment as a function of BOD_5 discharged to the river. The population of the area increased by approximately 16 percent between 1972 and 1982 while the BOD_5 discharged actually decreased by 50 percent. We feel this is a significant achievement and is indicative of efforts in the last ten years to improve water quality.



VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

While major progress has been made in the installation of best management practices on agricultural nonpoint problem areas, there is concern in North Dakota as to the future of Federal cost share programs to continue the correction of agricultural nonpoint source problems identified in a 208 statewide water quality plan. Programs that were designed to continue the 208 process (Rural Clean Water Program, Model Implementation Program, Clean Lakes Program, etc.) were never funded or were funded in such minimal amounts, programs had very little effect nation-wide.

North Dakota has been fortunate in the past three years to have State funds to match ASCS programs in priority areas. However, the ASCS programs cannot continue to be used for concentrated watershed areas. To insure progress in agricultural nonpoint pollution, funds must be appropriated for the Clean Water Program, Model Implementation Program, and the Clean Lakes Program, etc.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- ____ - Groundwater resource quality protection or supply assurance.
- ____ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

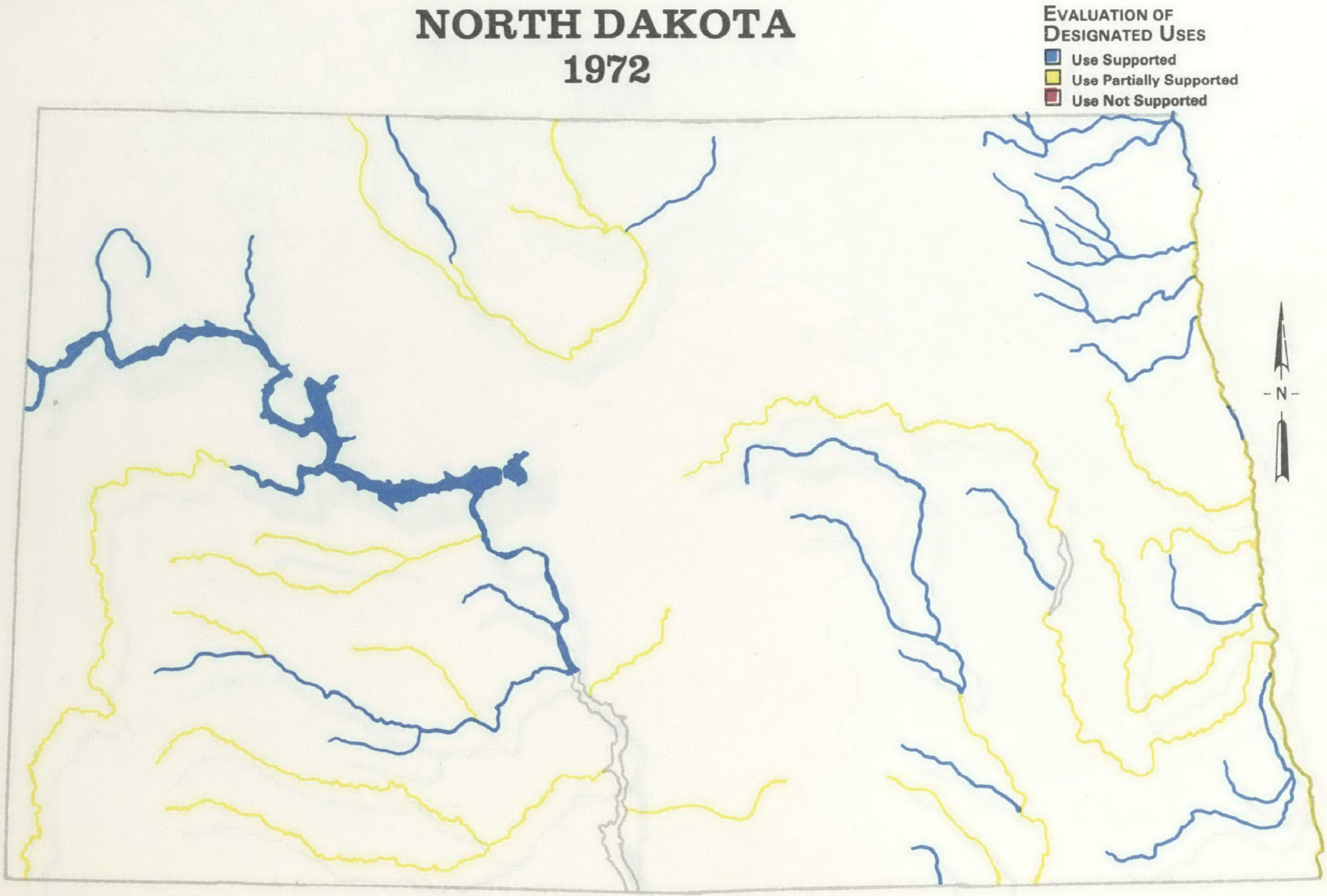
AGENCY PREPARING REPORT: Water Supply & Pollution Control Div

North Dakota State Department of Health

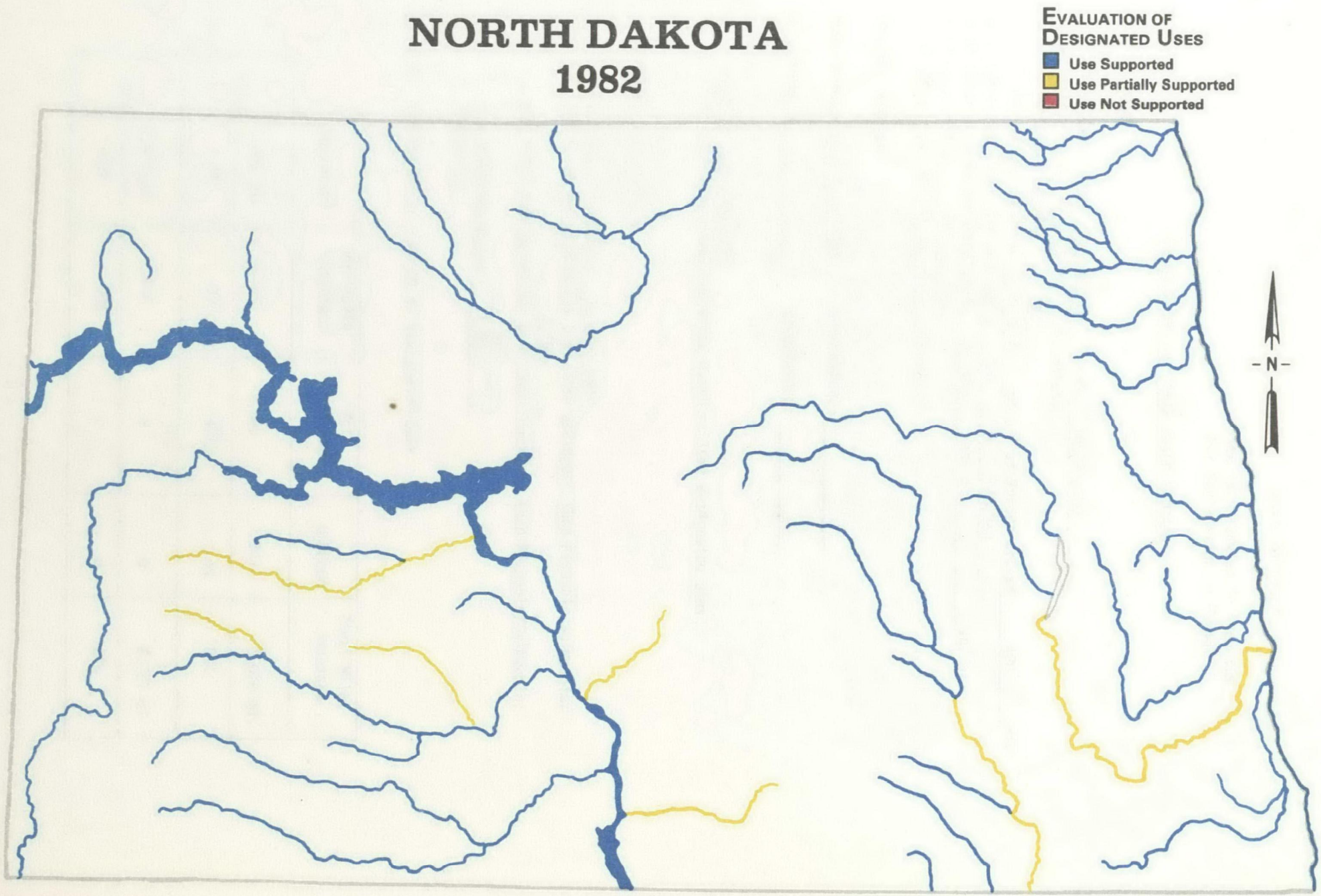
CONTACT PERSON & PHONE #: Dennis Fewless (701) 224-2354

DATE: September 1, 1983

NORTH DAKOTA
1972



NORTH DAKOTA
1982



State of Ohio*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 10,650,000 1980 10,797,000
State Surface Area 40,975 sq. miles
# of River Systems/Basins 23
# of River and Stream Miles 43,917 mi.; # of Border Miles* 420 mi.
# of Lakes and Ponds and Acreage 220 / 140,350 ac.
# of Marsh or Wetlands ac./sq.mi. 77,600 ac. or _____ sq. mi.
# of Coast Miles 175 mi.
# of Estuary sq. mi. None sq. mi.

*Border Rivers:

Name/Mileage Ohio River/420 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

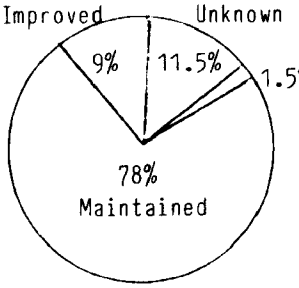
1. a. Miles Assessed: 3,070/6,387*
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,359
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 800
   d. Miles Monitored: 2,893
   *1972/1982

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	248 mi.	1,195	1,450	177	3,070 mi.
	8%	39%	47%	6%	100%
1982	2,687 mi.	3,700	0	0	6,387 mi.
	42%	58%	0	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	600	None
Miles Degraded:	100	None
Miles Maintained:	5,000	
Unknown:	687	

B. Lakes and Reservoirs

1. a. Acres Assessed: 140,350

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 115,350*

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 1,123

d. Acres Monitored: 116,473

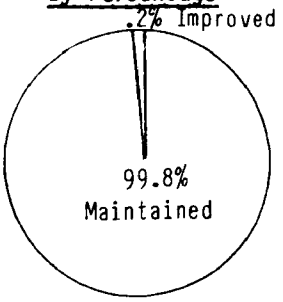
*State owned lakes and water supply reservoirs

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	68,349 ac.	72,000	0	0	140,349 ac.
	48	52	0	0	100%
1982	98,245 ac.	42,115	0	0	140,360 ac.
	70%	30%	0	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	227	0
Acres Degraded:	0	0
Acres Maintained:	140,123	
Unknown:	0	

C. Estuaries and/or Oceans - No estuaries or oceans in Ohio
Not Applicable

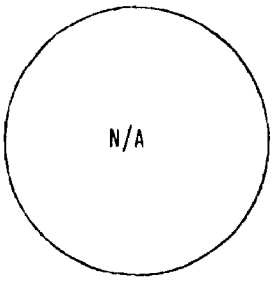
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	_____	/ _____
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	_____	/ _____
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	_____	/ _____
	d. Sq. Mi./Miles Monitored:	_____	/ _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%	NOT APPLICABLE			100%
1982					
	%				100%

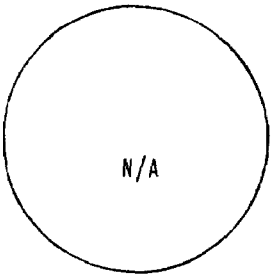
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

D. Great Lakes

1. a. Miles Assessed: 175

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 160

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 15

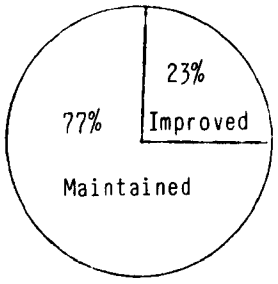
d. Miles Monitored: 100

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	70 mi.	90	0	15	175 mi.
	40%	51%		9%	100%
1982	120 mi.	55	0	0	175 mi.
	62%	38	0	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

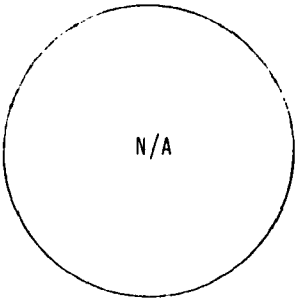


	Within Category	Change in Category
Miles Improved:	40	0
Miles Degraded:	0	0
Miles Maintained:	135	
Unknown:	0	

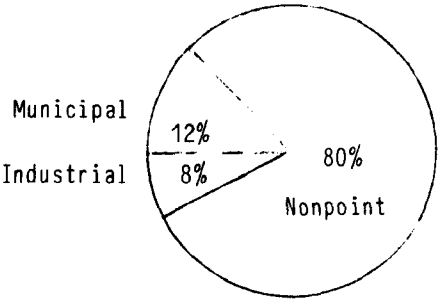
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

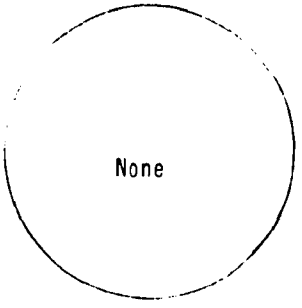
a. Streams and Rivers



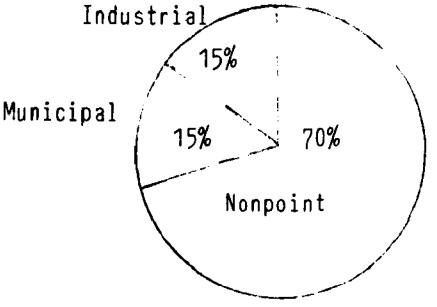
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X		0	X	X		Coli., D.O.
Industrial		X		X	X	X	X		D.O. Toxics
Non-Point	X		X	X		X	X		D.O. pH
Other (inc. natural)									pH, Toxics

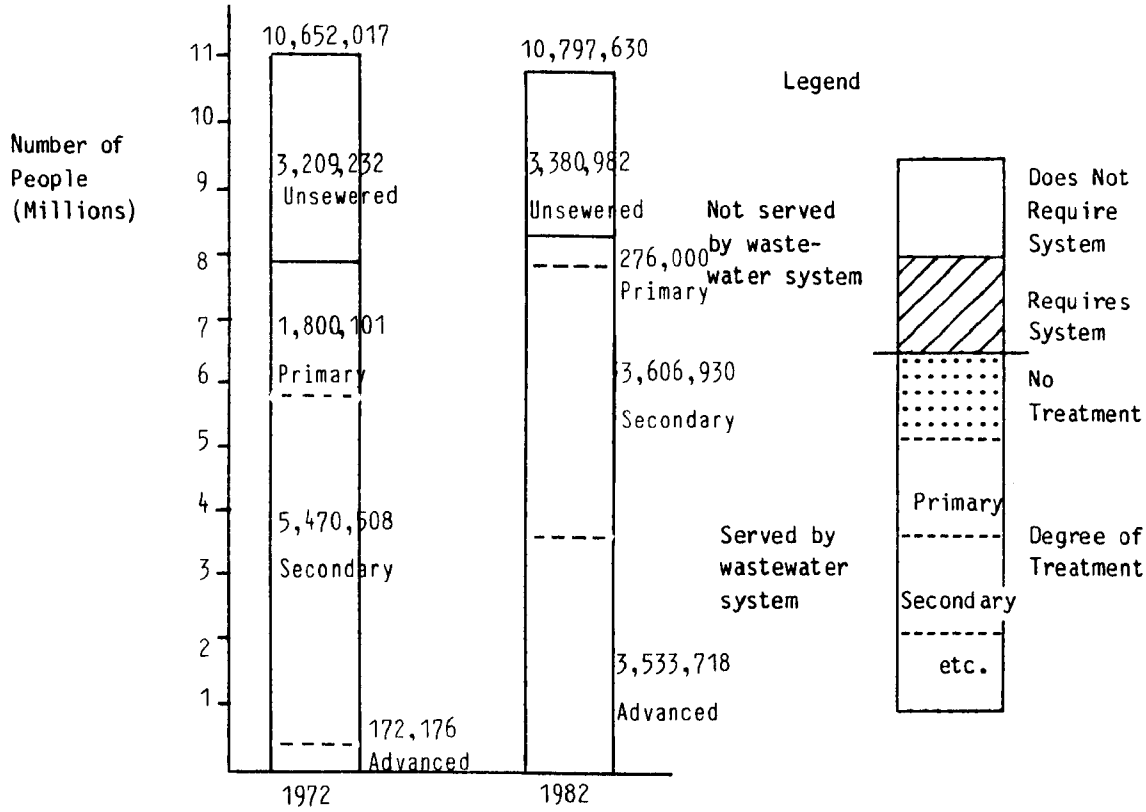
*Number of Stream/River Miles Affected by Toxics: N/A
*Number of Lake/Reservoir Acres Affected by Toxics: None
*Number of Estuary Square Miles Affected by Toxics: None
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 1

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

III. POINT SOURCES

A. Municipal

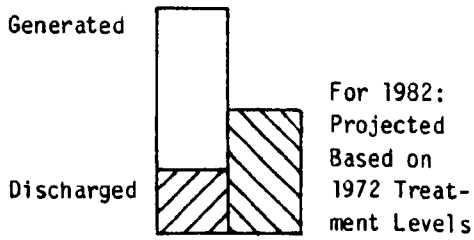
1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*

Population Equivalents of BOD (Millions)

INFORMATION NOT AVAILABLE



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

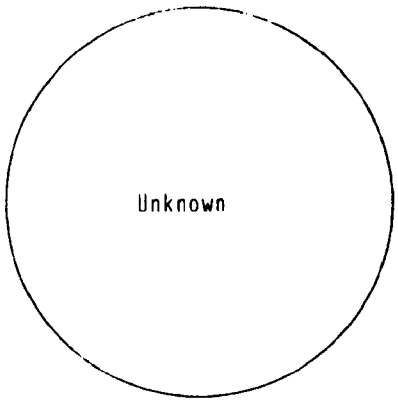
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	Unknown	114	57
Facilities Meeting 1982 Permit Requirements+	Unknown	102	54
Percentage of Facilities for Which Requirements Being Met	Unknown	89.5	94.7
Percentage of Flow For Which Requirements Met+	Unknown	98.0	94.2
Facilities Needing Upgrading	Unknown	113	--

Total Permits in Effect in 1982 171 significant

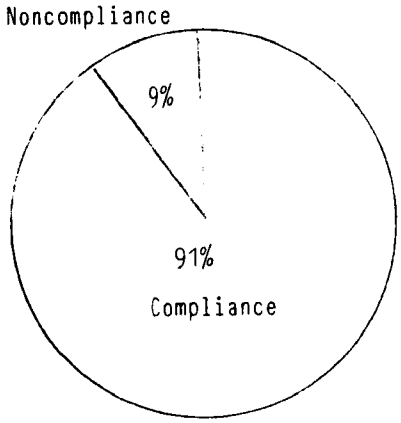
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

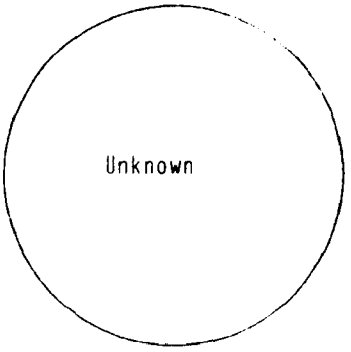
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	Unknown	0	82
Facilities Meeting 1982 Permit Requirements+	Unknown	N/A	59
Percentage of Facilities for Which Requirements Being Met	Unknown	N/A	71.9
Percentage of Flow for Which Requirements Met+	Unknown	N/A	--

Total Permits in Effect in 1982 95 significants

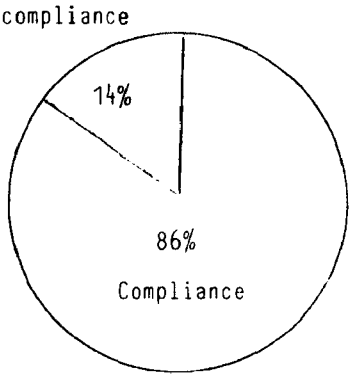
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Mining

Ohio's Unreclaimed Strip Mine program funded by two sources of State funds and federal strip mine funds is currently reclaiming approximately 750 acres of the most seriously affected strip mined land per year. In addition, a variety of smaller projects (land subsidence, bank stabilization, etc.) are carried out each year in the strip mined areas of Ohio.

USGS (Ohio) is conducting a variety of surface and groundwater monitoring programs in southeast Ohio including: (1) effects of strip mining on groundwater hydrology, (2) monitoring under PL 95-87 at 276 sites to determine water quality effects of strip mining, (3) analysis of sediment and brine to fingerprint sources of pollutants, and (4) variability of groundwater quality in coal-producing areas.

Agriculture

Lost Creek Demonstration (Section 108), Defiance County (Maumee River) Conservation Tillage; plot and watershed water quality studies.

Allen County Demonstration (108) (Maumee River) - no tillage and upgrading on-site systems; included water quality studies of on-site affected streams.

Accelerated Conservation Tillage Program (108) - 20 county SWCDs assisted by USEPA to increase conservation tillage efforts in Lake Erie Basin.

Honey Creek Sandusky River (ACOE, USGS, Ohio EPA, ACP) - accelerated application of conservation measures, especially no-tillage.

Fertility Management Demonstration Defiance County, (108 and Ohio EPA) project to determine beneficial effects of reduced phosphorus application on cropland.

Lake Erie Wastewater Management Study (ACOE and USEPA) - continuing effort to monitor Lake Erie Tributaries and near shore areas.

SCS Targeting Program - 25 counties starting 10/83; concentrates on tillage assistance and structural practices to reduce soil erosion (south, central, west-central and northwest Ohio).

Agricultural Conservation Program (ASCS) - special projects to reduce water pollution from agricultural land. State and national funding approximately $300,000 in FFY 1983.

Several counties have initiated their own tillage, animal waste demonstration projects, some of which include monitoring.

Ohio EPA critical area program has initiated intensive agricultural pollution control projects in nine watersheds, some of which include stream monitoring.

Construction Site Erosion

As of September, 1982, 31 municipalities and 21 counties have enacted urban sediment control programs in Ohio under urban sediment and agricultural pollution abatement legislation enacted in 1979.

Brine Disposal

Disposal of brine from oil and gas well drilling has become a major problem in the northeastern one-third of Ohio. ODNR and Ohio EPA have recently developed interagency working agreements to better enforce control regulations. Two regional agencies, Northeast Ohio Four County Regional Planning and Development Organization (Akron) and Eastegate Development and Transportation Agency (Youngstown) are developing regional brine disposal plans, with recommendations for funding disposal sites and improving State oversight.

Urban Runoff

Ohio EPA is conducting a small watershed monitoring program to assess pollutant loading from diverse urban watersheds.

USGS (Ohio) is conducting a five year project to define the magnitude and frequency of flood volumes in 32 Ohio watersheds. Also in progress is an urban runoff study at 30 sites in Ohio to collect water quality samples to develop and calibrate a rainfall-runoff model.

On-Site

Ohio EPA is conducting a Statewide on-site program focused on changing legislation and local institutions to facilitate control of individual sewage systems through improved inspection and maintenance.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent								
Primary Pollutants								

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: A. If entity is not in compliance during any given month they are sent a warning letter stating the parameter(s) for which they are in violation and requesting that they correct the situation. B. If non compliance continues, the entity is issued Director's final findings and orders (EFFOS) which normally contain a compliance schedule for correcting the conditions causing non compliance and interim limits to be met while correction is being made. C. For problem entities, the matter is referred to the state's Attorney General's office for judicial action.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

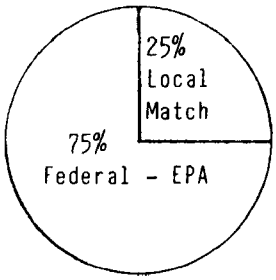
Total Number of Facilities:	38
Number of Pre-Administrative Actions:	854
Number of Administrative Actions:	23
Number of Judicial Actions:	5

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 2,562.9 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,921.4 Million
Other Federal:	$ Unknown
State:	$ 0.0
Local Match:	$ 641.5
Other Local:	$ Unknown

C. Program Activities

VI. SITE-SPECIFIC SUCCESSES

1. Major improvements have come about by the shut-down of marginal steel making operations and the upgrading of waste treatment to BAT levels or better at the remaining facilities.

   These improvements occurred in the Mahoning River Basin (Youngstown), the Cuyahoga River Basin (Cleveland), Upper Ohio River Basin, and Great Miami River Basin (Middletown).

2. Considerable improvement of Lower Great Miami has also occurred as the result of reduced loads by advanced municipal and paper mill waste treatment facilities.

3. During 1982 the flow-weighted average phosphorus concentration of municipal effluents discharged to the Lake Erie basin was 1.28 mg/l or 45% less than that discharged in 1978.

4. The Walleye population growth in the western basin of Lake Erie has exceeded all expectations and has drawn a large number of anglers from the midwest.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

1. Drainage from abandoned coal mining operations.
2. Disposal of brine-waters associated with drilling for oil and gas.
3. Combined sewer overflows.
4. Pollution from land uses.
5. Affordability of collection and treatment facilities in small communities with low incomes and poor soils for leaching of septic tank discharges.

Part B. Major Remaining Problems:

_____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.

_X_ - Groundwater resource quality protection or supply assurance.

_X_ - Identification and control of toxic pollutants from industrial and non-point sources.

_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.

_X_ - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Ohio Environmental Protection Agency

CONTACT PERSON & PHONE #: Maan Osman (614) 462-8671

DATE: October 14, 1983

State of Ohio River Valley Water Sanitation Comm.*

*See Introduction To Appendix For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,575,375* 1981 3,587,000*
State Surface Area 203,900 sq. miles
# of River Systems/Basins 1
# of River and Stream Miles 981 mi.; # of Border Miles* 941 mi.
# of Lakes and Ponds and Acreage 0 / ac.
# of Marsh or Wetlands ac./sq.mi. 0 ac. or sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage Ohio River-941 mi. Name/Mileage

Name/Mileage Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 981
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 981

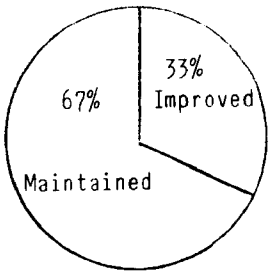
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	310 mi.	571	100		981 mi.
	31.7 %	58.3%	10%		100%
1982	630 mi.	351			981 mi.
	64.2 %	35.8%			100%

*Source - ORSANCO Facilities Status Surveys

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	0	320
Miles Degraded:	0	0
Miles Maintained:	661	
Unknown:		

B. Lakes and Reservoirs

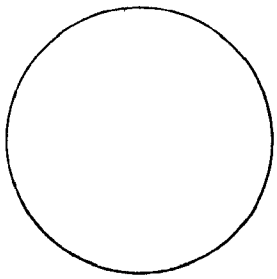
1. a. Acres Assessed: 0
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: _____
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	ac.				ac.
					100%
1982	ac.				ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

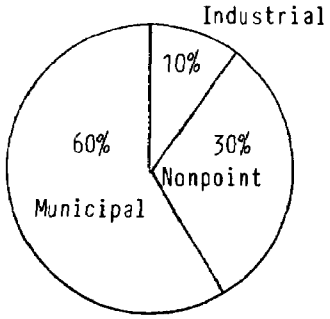


	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

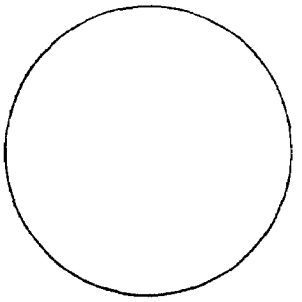
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

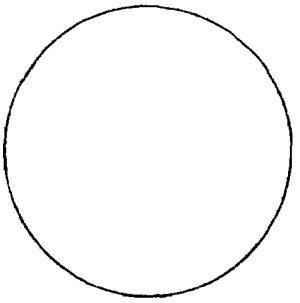
a. Streams and Rivers



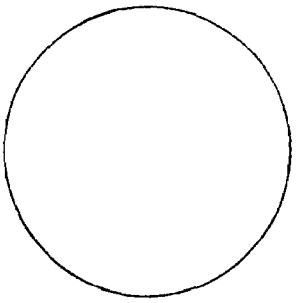
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X							Coli
Industrial						X			DO
Non-Point	X		X	X		X	X		
Other (inc. natural)			X		X		X		

*Number of Stream/River Miles Affected by Toxics: 0**
*Number of Lake/Reservoir Acres Affected by Toxics: _____
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Oceans or Great Lakes Mi. Affected by Toxics: _____

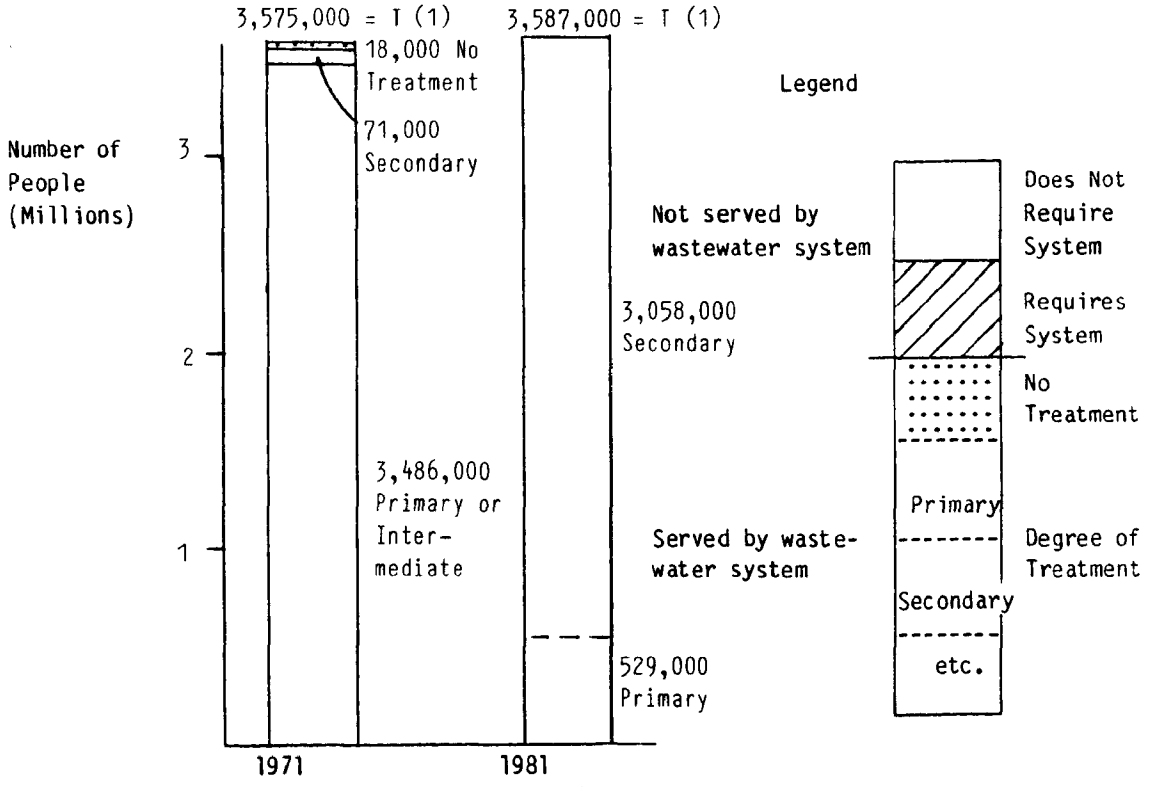
**Low levels of toxics are detailed at numerous sites, but uses are not threatened.

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

III. POINT SOURCES

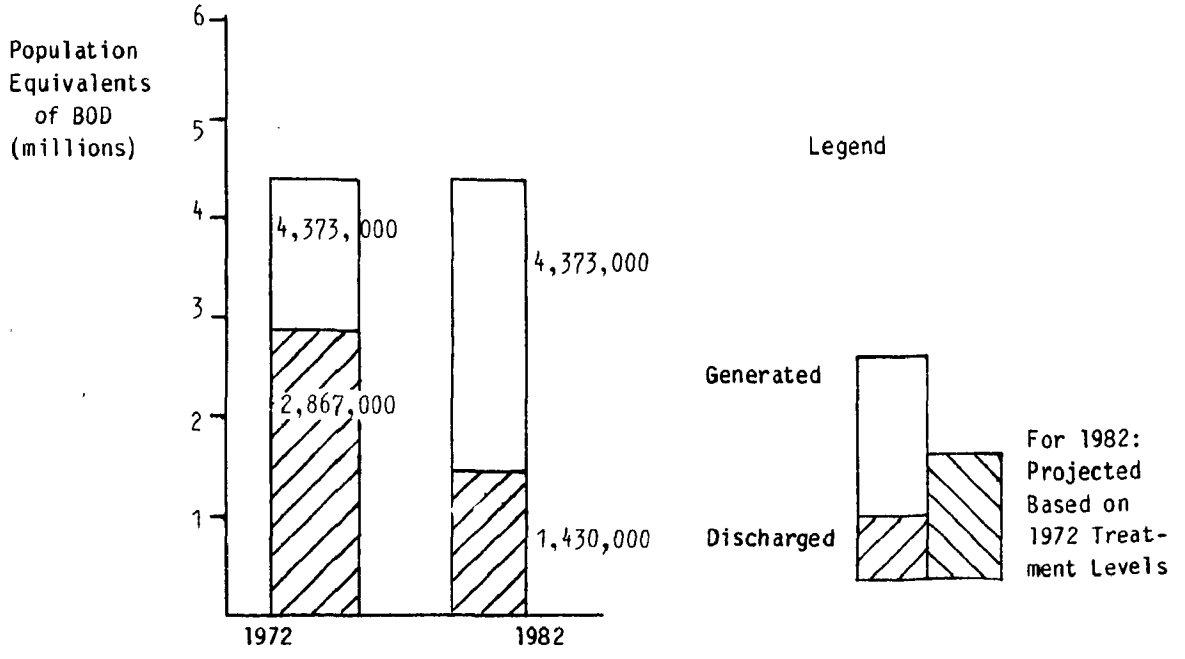
A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



(1) Sewered population direct to Ohio River

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

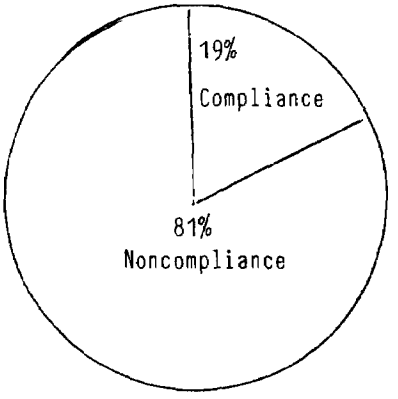
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	97	45	76	
Facilities Meeting 1982 Permit Requirements+	18	41	73	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	19%	91%	96%	
Percentage of Flow For Which Requirements Met+	0.2%	74%	78%	
Facilities Needing Upgrading	79	43	6	121*

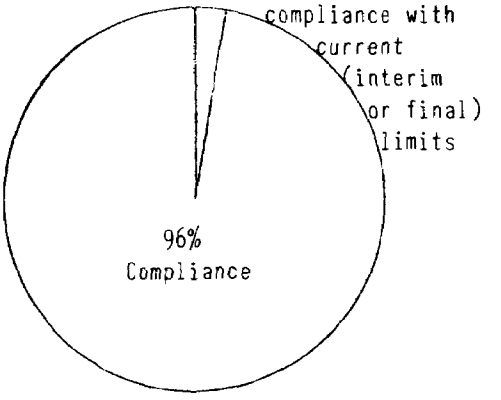
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

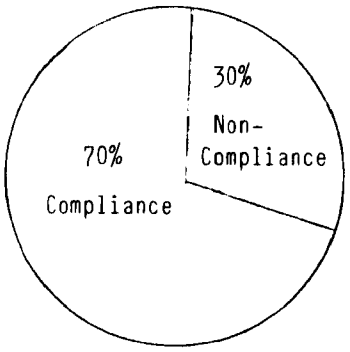
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	209		121	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	70%		111	
Percentage of Facilities for Which Requirements Being Met	70%		92%	
Percentage of Flow for Which Requirements Met+	70%		unknown	121*

+Includes "No-Discharge" Facilities

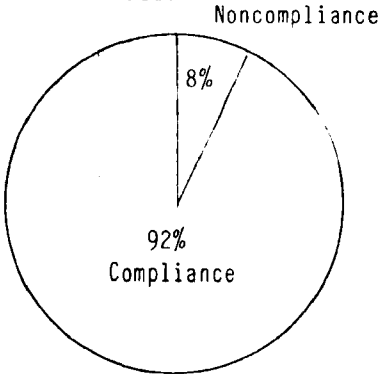
*Total significant industrial and municipal permits: 242
*Wastewater for Status Survey

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Urban runoff - A significant portion of the fecal coliform bacteria problem appears to originate from urban runoff and combined sewer overflows. Control programs are not proceeding due to lack of construction funds.

Agricultural runoff - Studies indicate agricultural runoff is a source of nutrients, suspended solids, pesticides and herbicides. Most of the problem on the Ohio originates in the tributaries, which account for 95% of the drainage area; control programs of the states will, therefore, determine the situation in the mainstem.

Mining - Acid mine drainage has long been recognized as a major problem in the basin; major impacts on the Ohio River occurred on the upper river in past years, but have been abated by states' control programs and flow regulation by the Corps of Engineers. Major problems are now on tributaries; all of the states have control programs in place.

Construction - Construction activities may have local effects, particularly increased solids. No such impacts have been identified on the Ohio, but there are considerable construction activities along the river.

Hydrologic Modifications - Navigation improvements have had both positive and negative impacts. The critical low flow has been increased through flow augmentation projects, but velocities have decreased due to the high dams. Hydroelectric power is being developed at the high dams; the Commission is working with the developers to assure that reaeration at the dams is maintained.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	M/W	NA	M/L	I/L	M/W	NA	NA
Primary Pollutants	C	Nut,P,SS		pH	SS	Lo Flow		

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: (Commission)

States assume first-line responsibility for enforcing ORSANCO pollution control effluent standards. ORSANCO may conduct investigations, hold hearings and issue orders upon approval by state in which discharge originates.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

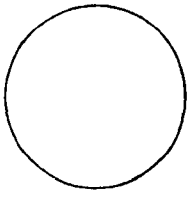
Total Number of Facilities:	0
Number of Pre-Administrative Actions:	0
Number of Administrative Actions:	0
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ unknown Million

By Percentage



Categories of Sources

Federal - EPA:	$ $208.45 Million
Other Federal:	$
State:	$
Local Match:	$
Other Local:	$

C. Program Activities

The Commission has long been active in direct monitoring of Ohio River water quality, maintaining inventories of the status of wastewater discharges in the Compact area, serving as a communications center during spill events, and disseminating public information. A cooperative approach to problem solving has been employed, as evidenced by the network of advisory committees, representing industries, water users, government agencies, and the general public, which provide input to the Commission.

Other program activities reflect emerging problems and shifting priorities in meeting water quality goals. Current activities include:

1. The Organics Detection System, through which daily samples from 12 points are analyzed for a variety of organic compounds. Additional sampling is initiated in spill events.

2. Updating and implementation of Commission effluent standards for discharges to the Ohio River.

3. Operation of the electronic monitoring network in cooperation with the U.S. Army Corps of Engineers. The Corps uses the data in the operation of dams and reservoirs in the basin.

4. Collection of monthly samples at 37 locations.

5. Special studies of water quality problems indicated by routine monitoring results.

6. An energy roundtable to provide a forum for discussion of regional issues related to water quality.

7. Resolving conflicts in states' water quality standards for the Ohio River.

8. Participation in hydropower development on the Ohio River to assure maintenance of water quality.

9. Development and implementation of a strategy for the control of toxic pollutants in the Ohio River Valley.

VI. SITE-SPECIFIC SUCCESSES

Diversity of fish species has improved significantly in the Ohio River, particularly the upper 300 miles, over the past 15 years. The increase is primarily in sport and commercially valuable species. Major water quality factors in this improvement include higher pH and dissolved oxygen levels and lower levels of toxic metals. The improvement is reflected in the increasing numbers of fishing tournaments along the river, including the 1983 Bass Masters Classic at Cincinnati.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The Commission's concern over toxic organics is reflected in the establishment of the Organics Detection System in 1978 and special projects such as the 1979 report on water treatment process modifications to control Trihalomethane formation.

Resolving interstate conflicts in water quality standards, treatment requirements, and spill response procedures has long been a Commission priority.

Part B. Major Remaining Problems:

____	- Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
____	- Groundwater resource quality protection or supply assurance.
X	- Identification and control of toxic pollutants from industrial and non-point sources.
X	- Municipal wastewater plant operation, maintenance, and rehabilitation.
X	- Pollution arising from abandoned industrial and/or mining facilities.

Low levels of various toxic pollutants have been detected at virtually all monitoring locations. Finding the sources of those materials and assuring that they do not increase to the point where water uses are threatened is a major challenge.

Poor performance by municipal wastewater treatment plants is the major cause of remaining problems with "conventional" pollutants.

Acid drainage from abandoned mines is a major problem on many of the tributaries.

AGENCY PREPARING REPORT: Ohio River Valley Water Sanitation Commission

CONTACT PERSON & PHONE #: Peter A. Tennant (513) 421-1151

DATE: September 14, 1983

State of Oklahoma*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,172,140 1980 3,025,266
State Surface Area 69,919 sq. miles
# of River Systems/Basins 7
# of River and Stream Miles 23,000 mi.; # of Border Miles* 517.4 mi.
# of Lakes and Ponds and Acreage 480,000 / 143,438 ac.
# of Marsh or Wetlands ac./sq.mi. 53,000 ac. or 82.8 sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Red River/517.4 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 11,985
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 1,338.5
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 11,985

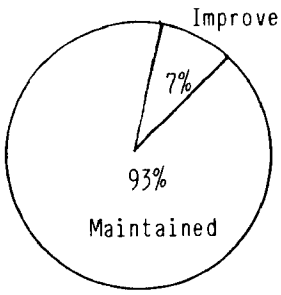
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
*1972	mi.			*	11,985 mi.
	%				100%
1982	9,919 mi.	1,036	1,030		11,985 mi.
	82 %	9%	9%		100%

*No representative data available.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:		822.5
Miles Degraded:		
Miles Maintained:	11,162.5	
Unknown:		
Total	11,985	

B. Lakes and Reservoirs

1. a. Acres Assessed: 646,664

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

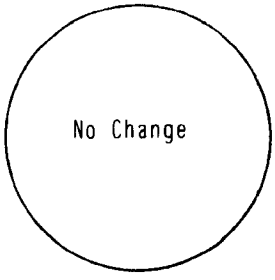
d. Acres Monitored: 324,023

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	560,501 ac.				560,501 ac.
	100%				100%
1982	646,664 ac.				646,664 ac.
	100%				100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

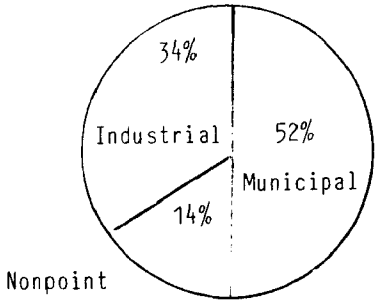


	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:	646,664	
Unknown:		

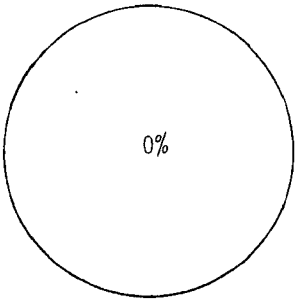
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

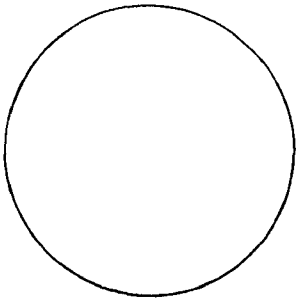
a. Streams and Rivers



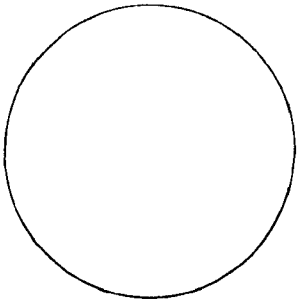
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli/DO
Industrial									
Non-Point						X			metals
Other (inc. natural)				X				fluoride	pH

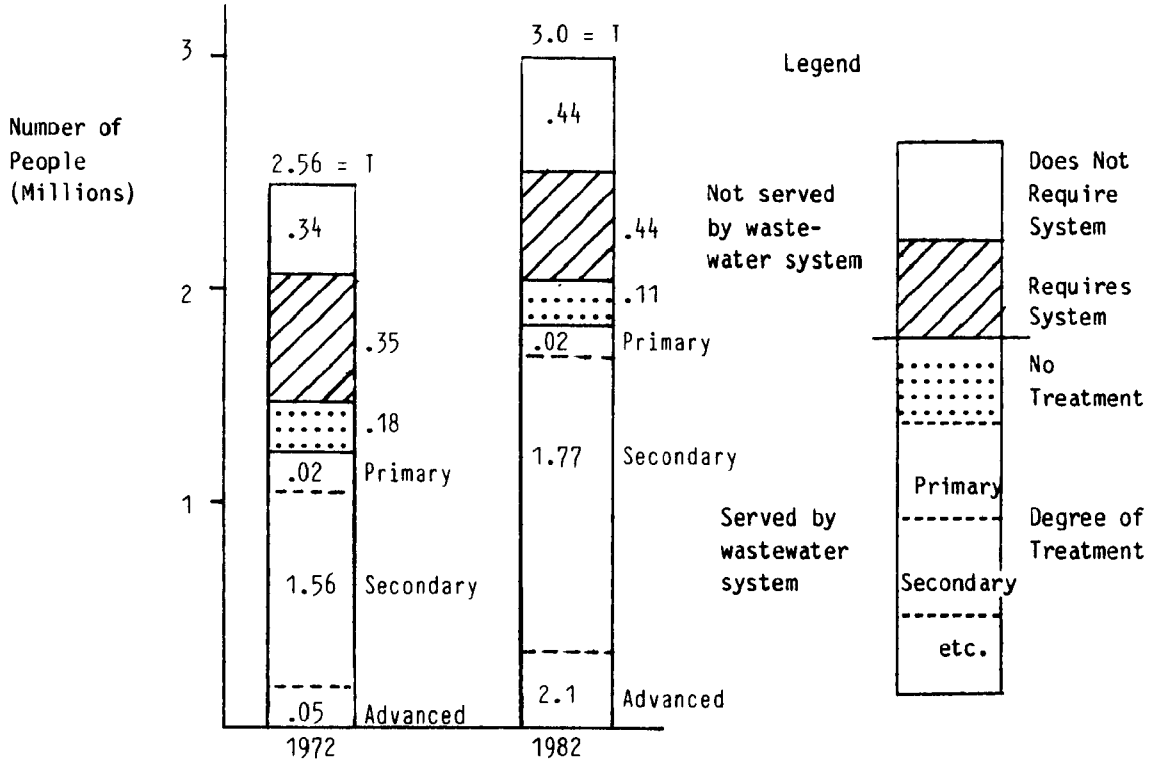
*Number of Stream/River Miles Affected by Toxics: 979
*Number of Lake/Reservoir Acres Affected by Toxics: -0-
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

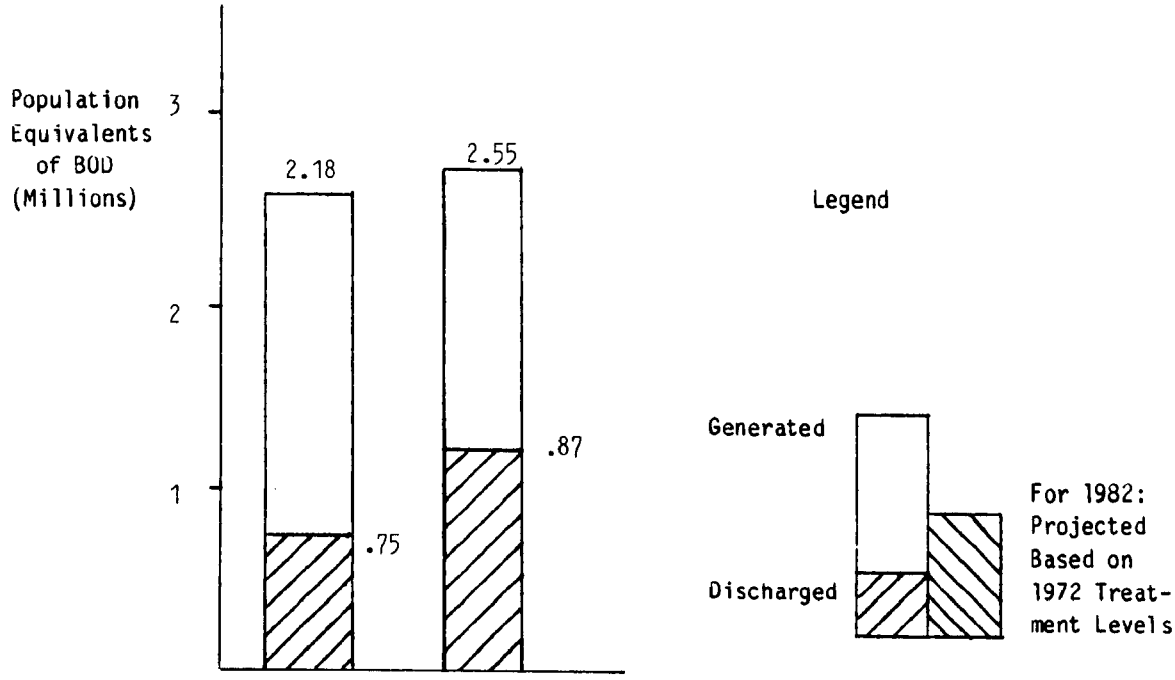
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0*	25	195
Facilities Meeting 1982 Permit Requirements+	0	18	117
Percentage of Facilities for Which Requirements Being Met	0	72%	60%
Percentage of Flow For Which Requirements Met+	0	80% estimated	70% estimated
Facilities Needing Upgrading			

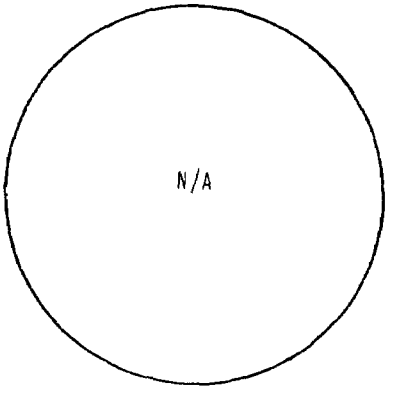
Total Permits in Effect in 1982: 195

+Includes "No-Discharge" Facilities

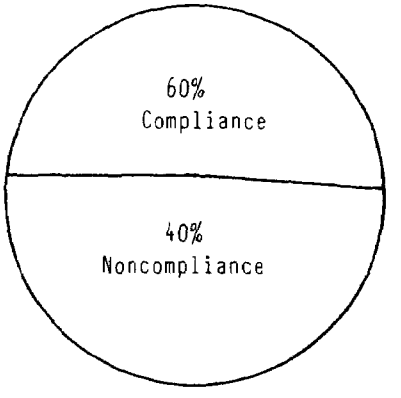
* No permits issued until 1984

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

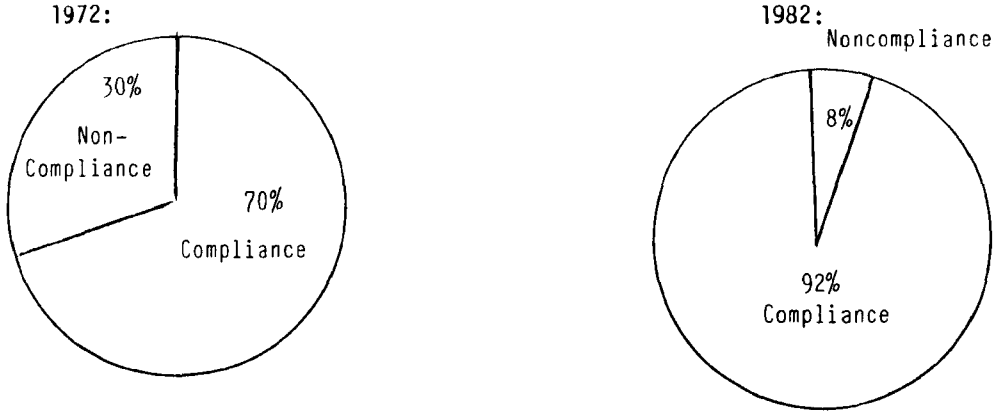
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	21	12	30
Facilities Meeting 1982 Permit Requirements+	19	3	19
Percentage of Facilities for Which Requirements Being Met	90%	25%	63%
Percentage of Flow for Which Requirements Met+	N/A		N/A

Total Permits in Effect in 1982: 560

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

In 1980, 104 watersheds were selected across the State to be sampled during stream runoff conditions. To date, 1882 samples have been collected and analyzed. From these data approximately 40 watersheds have been identified as requiring little or no further sampling because of low pollutant levels during runoff events. Of the remaining watersheds 11 have been selected as implementation projects. Four of the 11 now have completed implementation plans with the other 7 scheduled for completion by January, 1984. The plans recommend a voluntary management program centered on the installation of proven management practices on areas identified as having the highest sediment production potential.

The NPS chart requested in the STEP instructions has not been completed. To do this would require a substantial amount of subjectivity, would lack validity and would not serve any useful purpose.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent								
Primary Pollutants								

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

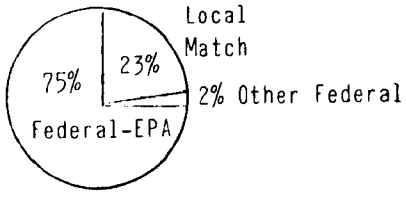
Total Number of Facilities:	108
Number of Pre-Administrative Actions:	11
Number of Administrative Actions:	7
Number of Judicial Actions:	2

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 393.4 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 294.7 Million
Other Federal:	$ 7.1
State:	$ -0-
Local Match:	$ 91.6
Other Local:	$ -0-

C. Program Activities

Over the past ten years Oklahoma has experienced a significant growth in population accompanied by increased industrialization and modernization of our cities and towns. The challenge has been to maintain as well as improve water quality. Completion of the water quality management planning process has helped to focus our attention on problem areas.

Water quality standards in Oklahoma were initially developed under the concept of water quality goals. When we tried to make these goals enforceable standards we found that natural conditions of our southwest climate made them unattainable, not enforceable and, in some instances, not even realistic goals. We are now in the process of developing realistic, justifiable and enforceable standards based upon actual stream conditions.

When delegation of the permitting program for wastewater discharges was first discussed, institutional obstacles made it impossible in Oklahoma. These problems are being resolved. The water quality management planning process served as an incentive to work towards delegation for both municipal and non-municipal facilities. The state is developing a streamlined permitting process which will result in one permit being issued and signed jointly by EPA and the State.

In the municipal construction grants program in Oklahoma there has been a historical effort to make a large number of grants to small communities in an effort to bring everyone up to a base level of secondary treatment and to correct existing problems with individual sewage treatment systems. At the same time we have been addressing problems with larger communities and cities. The present decrease in grant funding has led to changes in requirements for grant eligibility and a general tightening of these requirements. Implementing the recommendations of water quality management plans has meant that waste load allocation studies must be done to determine actual levels of treatment needed to protect beneficial uses and achieve water quality standards.

The state's nonpoint source management program has developed a set of management practices, or guidelines, which are designed to control nonpoint sources of pollution. These guidelines have been distributed through local conservation districts for voluntary implementation. A network of monitoring stations tracks the effects of these practices.

Oklahoma also has a number of Clean Lakes projects underway to study ways to clean up some of our reservoirs and maximize their recreational use.

VI. SITE-SPECIFIC SUCCESSES

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Oklahoma has had to deal with the environmental pressures brought about by increased utilization of our oil and gas reserves. Intense drilling activities led to a proliferation of trailer park development in parts of the State. Many systems were not permitted and caused water quality problems with their discharges.

Another problem associated with economic growth has been the development of resort areas on our reservoirs.

Protection of groundwater is also an issue in Oklahoma. We are addressing the problem through development of water quality standards for our aquifers. These standards will be based upon existing average water quality and designed to protect that quality from degradation.

Part B. Major Remaining Problems:

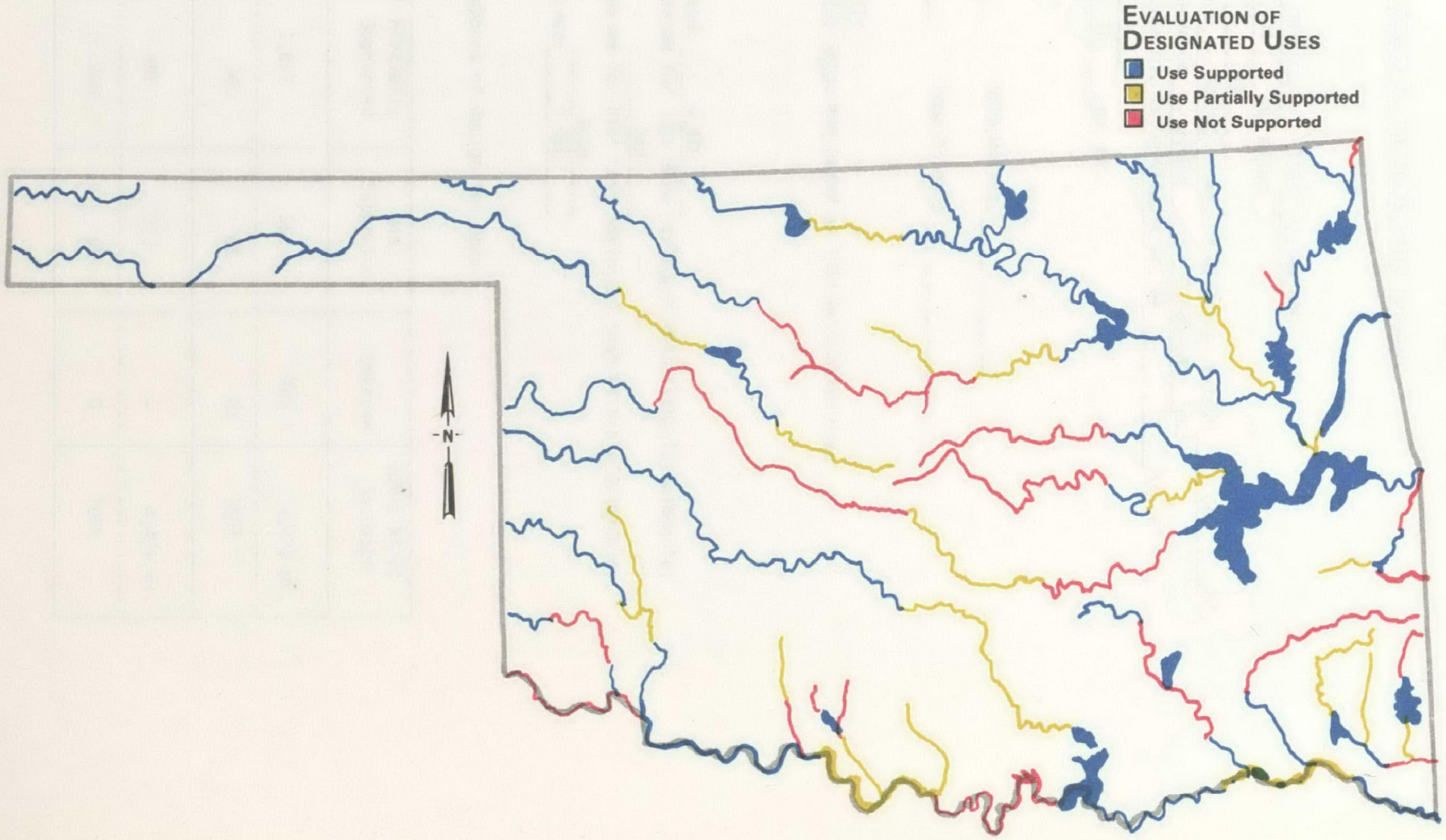
- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.
- X Funding the 206 community wastewater projects which are included in the immediate Oklahoma priority rating lists.
- X Maintaining adequate levels of effort in the face of shrinking local, state and federal funding.

AGENCY PREPARING REPORT: Oklahoma State Department of Health

CONTACT PERSON & PHONE #: Judith A. Duncan (405) 271-5240

DATE: October 7, 1983

OKLAHOMA
1982



State of Oregon*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,091,500 1980 2,544,000
State Surface Area 96,184 sq. miles
# of River Systems/Basins 19
# of River and Stream Miles ~ 90,000 mi.; # of Border Miles* 649 mi.
# of Lakes and Ponds and Acreage 3,000 / 7,500,000 ac.
# of Marsh or Wetlands ac./sq.mi. Not Available ac. or _____ sq. mi.
# of Coast Miles 362 mi.
# of Estuary sq. mi. 71 sq. mi.

*Border Rivers:

Name/Mileage Columbia/309 Name/Mileage _____

Name/Mileage Snake/340 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

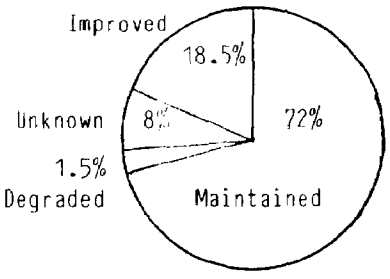
1. a. Miles Assessed: 4,479
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 249
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: None
   d. Miles Monitored: 2,968

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2,687 mi.	1,077	353	362	4,479 mi.
	60%	24%	8%	8%	100%
1982	3,309 mi.	897	273	--	4,479 mi.
	74%	20%	6%	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	508	323
Miles Degraded:	65	
Miles Maintained:	3,221	
Unknown:	362	

B. Lakes and Reservoirs

1. a. Acres Assessed: 191,791

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: None

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: None

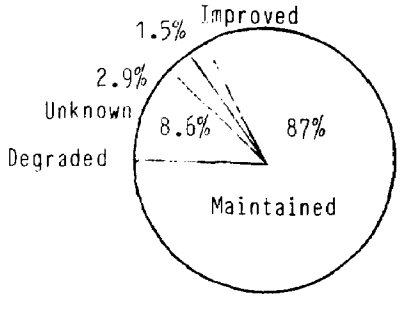
d. Acres Monitored: None

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	106,974 ac.	75,201	4,118		186,293 ac.
	57.4%	40.4%	2.2%		100%
1982	112,472 ac.	75,201	4,118		191,791*ac.
	59%	39%	2%		100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	3,012	
Acres Degraded:	16,528	
Acres Maintained:	166,753	
Unknown:	5,498	

*Difference in 1982-1972 acres assessed and the acres under unknown represents reservoirs created since 1972.

C. Estuaries and/or Oceans

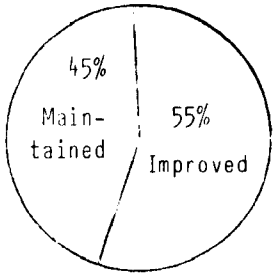
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	66.5	
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	None	
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	None	
	d. Sq. Mi./Miles Monitored:	46.7	

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	3.76 sq. mi.	62.74			66.5 sq. mi.
	6%	94%			100%
1982	3.76 sq. mi.	62.74			66.5 sq. mi.
	6%	94%			100%

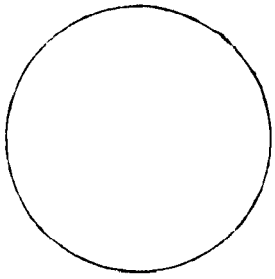
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	36.8	--
Sq.Mi.Degraded:	--	--
Sq.Mi.Maintained:	29.7	
Unknown:	--	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

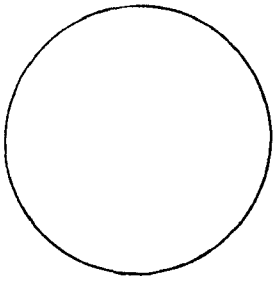
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

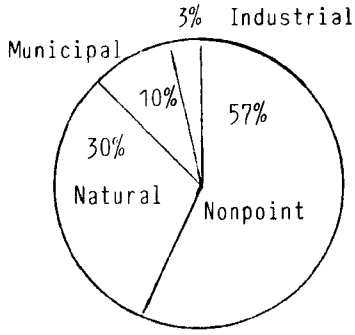


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

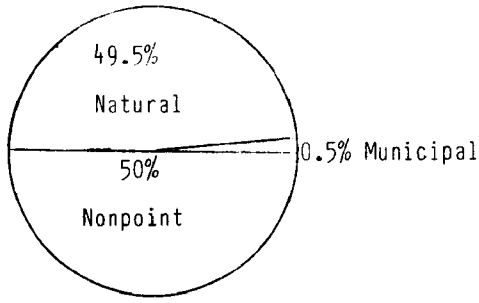
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

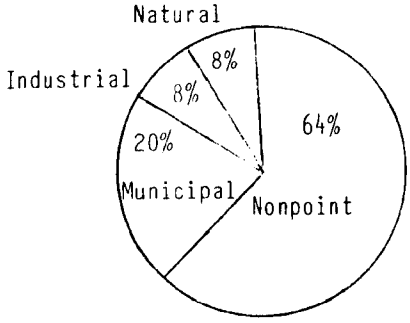
a. Streams and Rivers



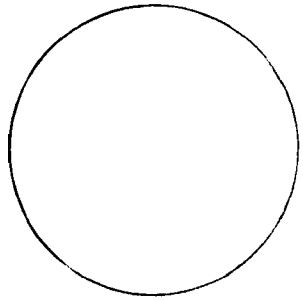
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli.
Industrial		X							
Non-Point	X		X				X		Coli./Nut.
Other (inc. natural)		X	X		X	X		LoFlo	Low Flow

*Number of Stream/River Miles Affected by Toxics: None Identified
Number of Lake/Reservoir Acres Affected by Toxics: 2,998
*Number of Estuary Square Miles Affected by Toxics: None Identified
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

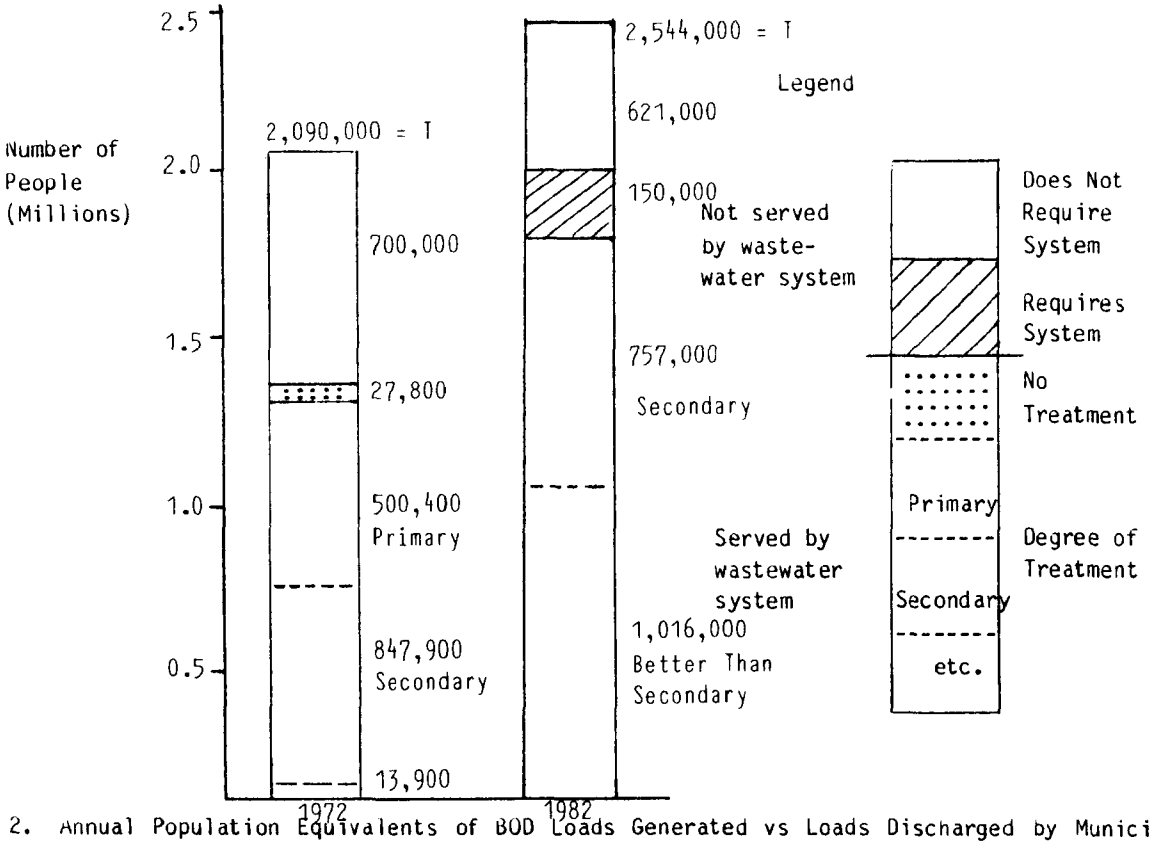
*Naturally Occurring Mercury

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

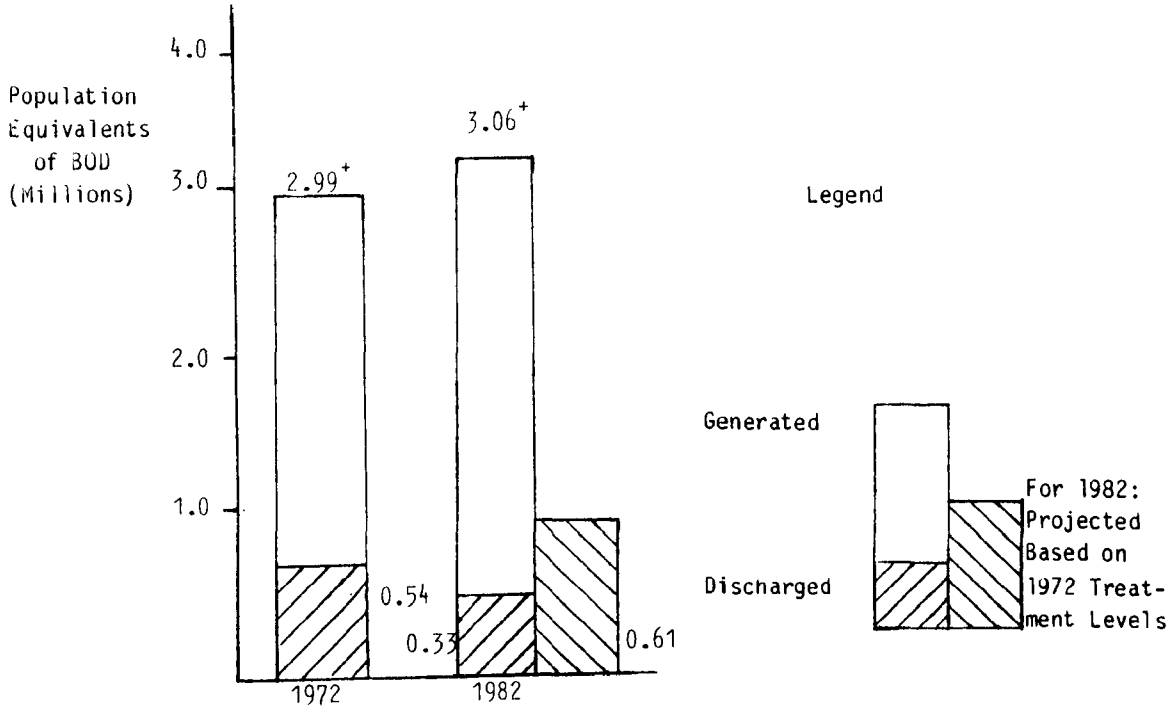
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

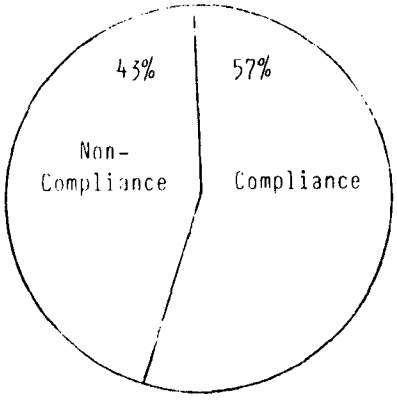
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	65	3	57	
Facilities Meeting 1982 Permit Requirements+	37+	3	56+	Total Permits in Effect in 1982 364+
Percentage of Facilities for Which Requirements Being Met	57%	100%	98%	
Percentage of Flow For Which Requirements Met+	31%+	100%	99%	
Facilities Needing Upgrading	22	3	10	

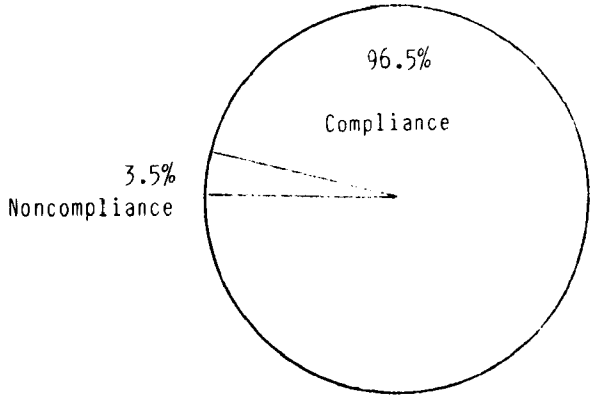
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

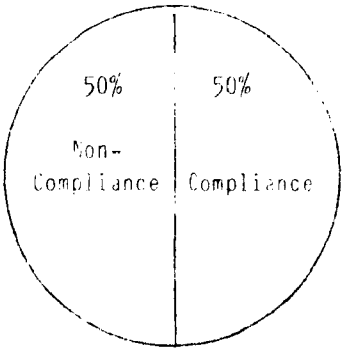
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	34	8	28	Total Permits in Effect in 1982 560+
Facilities Meeting 1982 Permit Requirements+	17+	7	27+	
Percentage of Facilities for Which Requirements Being Met	50%	88%	96%	
Percentage of Flow for Which Requirements Met+	51%	> 59%	99.9%	

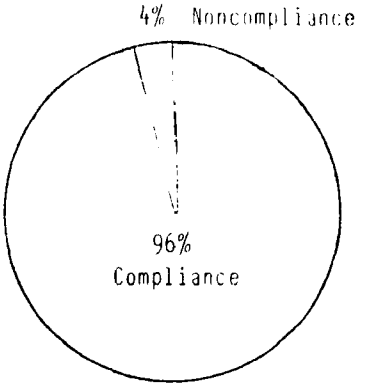
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

While the record of pollution control efforts in Oregon include forty years of attention to discharges from municipalities and industries, only ten years has been devoted to nonpoint sources. At this stage, primarily nonpoint sources are responsible for the waters not fully supporting their uses. Progress has been made in assessing effects, developing institutional arrangements, and identifying best management practices for the control of some types of nonpoint sources. But since the program is still in its infancy, water quality results are difficult to measure at this time.

Initially, forest harvesting operations on state and private lands came under "control" through the adoption of a Statewide Forest Practices Act in 1971. As the national nonpoint source program evolved, Oregon initiated studies and projects to deal with problems associated with federal forest lands and rangelands activities, dryland wheat farming, confined animal feeding operations, and irrigation practices. Seven Soil and Water Conservation Districts involved in investigating nonpoint problems in their areas have adopted plans establishing best management practices. Shellfish growing area protection plans have also been developed to address elevated fecal coliform levels for two of Oregon's major estuaries. In one coastal community, this effort has led to a $3.6 million Rural Clean Water Project to assist dairy farmers implement animal waste controls.

The state's three largest urban areas are implementing urban runoff controls which include combined sewer separation, construction site best management practices and drainage and industrial site management practices.

Since 1973, a state construction permit has been required prior to installing or modifying an on-site sewage disposal system (septic tank). This program is designed to prevent the creation of health hazards and surface or groundwater pollution which require sewer construction to correct.

Two hundred twenty-five square miles have been extensively studied to determine the effect of nitrate-nitrogen from existing failing septic tanks and cesspools. Aquifer management plans call for a variety of controls including sewers, special on-site disposal system rules, and building moratoria.

Efforts generally continue to educate the public on nonpoint source problems and develop control programs for those of highest priority consistent with available resources.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/W	M/W	I/L	I/L	N/A	N/A	N/A
Primary Pollutants	C,T,M, O(oil& Grease)	C,LoF lo SS, Temp Nutrients	SS O-Temp	SS	SS			

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The primary mechanism for achieving compliance with state and federal water pollution laws has been the use of compliance schedules. Where treatment or control of waste waters is inadequate and costly and, capital outlay solutions are needed, specific detailed programs and timetables are written into either permits or Stipulated Consent Agreements ordered by the Environmental Quality Commission. For municipalities, these programs may include limitations or restrictions on additional sewer connections until facilities are upgraded. Occasionally, enforcement actions which include 5-day warning notices and notices of intent to assess civil penalties are needed. If these go unheeded, penalties are levied. But even after a penalty has been imposed, a reduction or elimination of penalties may be recommended if the source works with the Department and takes remedial action.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

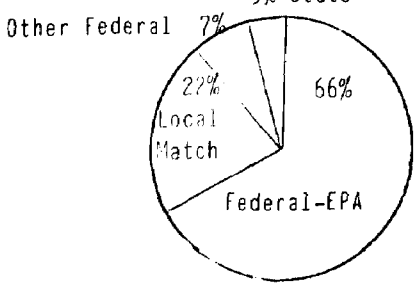
Total Number of Facilities:	3
Number of Pre-Administrative Actions:	3
Number of Administrative Actions:	
Number of Judicial Actions:	

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 549.7 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 363.6 Million
Other Federal:	$ 38.9
State:	$ 26.0
Local Match:	$ 121.2
Other Local:	$Not Determined

C. Program Activities

Oregon's water quality program emphasis on pollution prevention has enabled the state to maintain relatively high water quality while accommodating significant population growth. Efforts over the past decade have continued to be directed toward three principal program elements, as follows: (1) assuring necessary pollution prevention controls are provided prior to approving new waste disposal facilities and new waste discharges, 2) requiring upgraded treatment which minimizes waste load increases to accommodate growth and development, and 3) developing and implementing appropriate best management practices to control nonpoint sources of pollution. In addition, where existing high water quality in lakes and rivers exceed those levels necessary for fisheries and recreation, policies restrict further waste discharges that would lower water quality.

Permit issuance and technical assistance activities have been the mainstay for implementing point source pollution control policies. Oregon began issuing waste discharge permits in 1968, four years before NPDES permits were instituted. Treatment requirements and schedules to remedy unacceptable discharges and/or poor water quality conditions are incorporated into permits. Alternatives to wastewater discharges, such as land application of treated municipal effluents and recirculation and reuse of industrial process waste waters also are encouraged. Oregon has found that plan review, technical assistance and sewage treatment operator training activities are essential to promoting and achieving the necessary efficiency and performance among waste water treatment and control facilities. To reduce paperwork and still maintain control over sources, General Permits are now being issued for minor impact source categories.

The state is proud of its record for prioritizing municipal waste treatment projects and certifying grant applications based on the need to eliminate health hazards, beneficial water use impairment and water quality standards violations. Timely review and certification of grant applications have resulted in full utilization of all federal sewerage works construction grant allotments. Since grant programs will not adequately finance needed new facility construction, Oregon has been encouraging cities to develop long-range financing plans which assure that needs can be met without federal funds. In addition, financial incentives for investing in pollution control facilities have been provided to industry. Through a system of tax write-offs, a state tax credit program allows for the recovery of up to 50% of pollution control equipment costs for industry.

An essential component of the state's preventive approach to water pollution control is monitoring and assessment. Routine sampling at established stations, waste discharge permit compliance monitoring and prioritized special studies and projects have provided an orderly process for evaluating and documenting water quality conditions. Where the magnitude and extent of pollution problems are not easily discernable, especially where human activities generate nonpoint sources of pollution, special projects have been very important. To the maximum extent possible, these projects are coordinated with other resource and local government agencies and the resulting control strategies are incorporated into the Statewide Water Quality Management Plan. Since Oregon's citizens and resource agencies acknowledge their role in protecting and maintaining the quality of the state's waters, it is not uncommon for the Governor to designate other state agencies and local government entities as responsible for implementing the pollution control plans developed through special projects.

In the last several years toxicity evaluations using bioassays and groundwater monitoring have been added to the program, consistent with its emphasis on pollution prevention and problem identification.

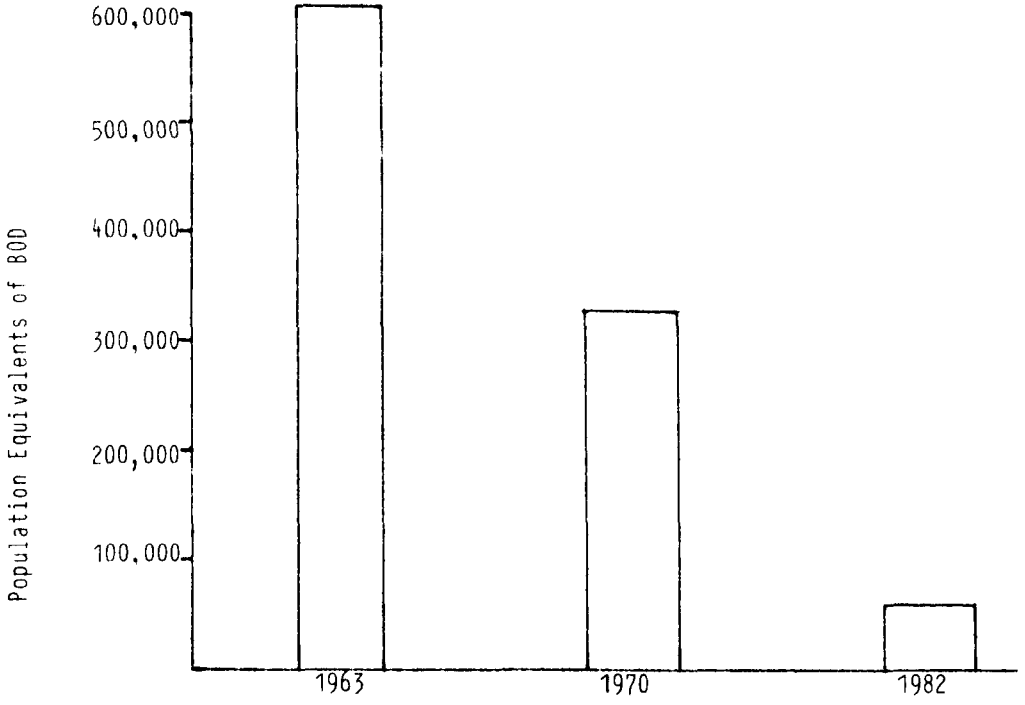
VI. SITE-SPECIFIC SUCCESSES

Recognizing that local site conditions in many low density rural areas do not permit use of conventional septic tank-drainfield systems because of the physical limitations related to soils, groundwater tables, climate, and slope, the Department initiated a program in 1975 to develop alternatives to the standard system through controlled experimentation. Suitable alternatives were needed to repair failing systems that were causing public health and groundwater problems, as well as to permit use of marginal land for rural residential development.

The Department identified problem areas (those with either a history of failing systems or high denial rates), designed alternatives to overcome site limitations, supervised construction, monitored system performance, evaluated data and adopted alternatives that would function satisfactorily. These systems include the evaportranspiration - absorption system, the sand filter, steep slope system, the tile-dewatering system, the split waste system, and the low-pressure distribution system. From a technical standpoint, performance of these systems highlights the use of soils as part of the treatment system rather than as a means to dispose and disperse waste water. Oregon also considers this program a success from the standpoint that on-site disposal alternatives are now available where traditional systems would have been expected to fail. Site evaluation approval rate statewide increased from 72 percent in 1978 to 95 percent during the first half of 1981. Rural area development needs can now be met without causing health hazards and water quality problems resulting from inadequate systems. Prime farmlands, where septic tanks work well, can be preserved.

Site Specific Success (2)

BOD Loads to the Mainstem Willamette River from Pulp and Paper Mills



This graph displays the significant reduction in BOD loads from pulp and paper mill dishcarges to the mainstem Willamette River. The 80% reduction in load between 1970 and 1982 was accompaniedby a 30% increase in pulp production and an 80% increase in paper production.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Addressed on previous page.

Part B. Major Remaining Problems:

- ____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

Since 1956, Oregon's publicly owned sewerage utilities have relied on federal sewerage works construction grants to finance a major portion of their sewerage construction and improvement costs. Many facilities built in the 1960's now are worn out. Unfortunately, replacement needs were not addressed when facilities initially began operation and over the years adequate consideration was not given to the potential for a reduction in federal financial assistance. Sewerage utilities are being encouraged to develop and implement financing plans which will assure adequate funding for construction, operation, maintenance, and replacement of these facilities--with or without the aid of federal funds. Failure to accomplish the needed increases in local funding for construction, operation, maintenance, and replacement will result in loss of much of the water quality improvement gained over the last 20 years.

Although it's against the law to pollute any Oregon waters, there has been a tendency until recently to concentrate efforts on surface water quality and to deal with groundwater mostly on a trouble-shooting basis when problems have occurred. Major concerns which emphasize prevention of groundwater pollution were taken in 1981 when a statewide groundwater protection policy was established. Information is being assembled on the location of various groundwater flow systems and priorities are being set to: 1) maintain existing high quality groundwater, 2) provide special protective measures where beneficial uses could be threatened--in areas where groundwater is the sole source of drinking water, for example, and 3) deal with specific problems as they are discovered. Within the next year, groundwater monitoring will be expanded and the groundwater protection policy will be refined, leading toward adoption of groundwater standards.

With growing recognition that many chemicals have unanticipated side-effects, Oregonians are devloping concern about toxic substances. To provide for the elimination of toxicity, the Department has required pretreatment plans of municipal facilities, made assurances that technology (BAT) is operational and has conducted bioassays of waste water discharges where waste water acute toxicity is tested on aquatic organisms typical of those that inhabit our lakes and streams. Even though biological chemicals observations have not indicated any problems so far, there could be traces of toxic chemicals in our waters that affect various stages of the food chain or cause chronic toxicity. We need to go beyond the approaches utilized to date. Standard methods for evaluating chronic toxicity and potential synergistic effects of combined chemicals need to be established. Only with adequate and scientifically sound information and data can we satisfy public concern over toxics.

A critical element in the future effectiveness of water quality control efforts in the next decade is the balancing of the state's water resources. As land is taken out of production to accommodate population increases and more intensive farming practices require more irrigation, actions which may have in the past seemed unacceptable, unnecessary, too costly, or out of the question will have to be reexamined. Historically, water management programs conducted pursuant to state law have given clear preference to out of stream uses--withdrawal of water for domestic and industrial supply and irrigation. As a result, summer flows in many streams are almost totally withdrawn leaving nearly dry streambeds with water too warm for fish. In addition, recent evidence shows that the public's water needs are being met by the rapid depletion of some groundwater aquifers.

Maintaining a water resource balance is challenging the state to look more closely as: 1) the installation of more efficient and costly waste treatment to permit direct recycling of waste water or return to the stream with even less quality impact, 2) the construction of many more dams and reservoirs to store flood flows for use and stream flow augmentation release during the summer, 3) enforced conservation in all areas of water use so as to reduce withdrawals while still achieving benefits, 4) reevaluation of appropriateness of granting perpetual rights to individual citizens for exclusive use of publicly owned waters.

AGENCY PREPARING REPORT: Oregon Dept. of Enironmental Quality

Water Quality Division

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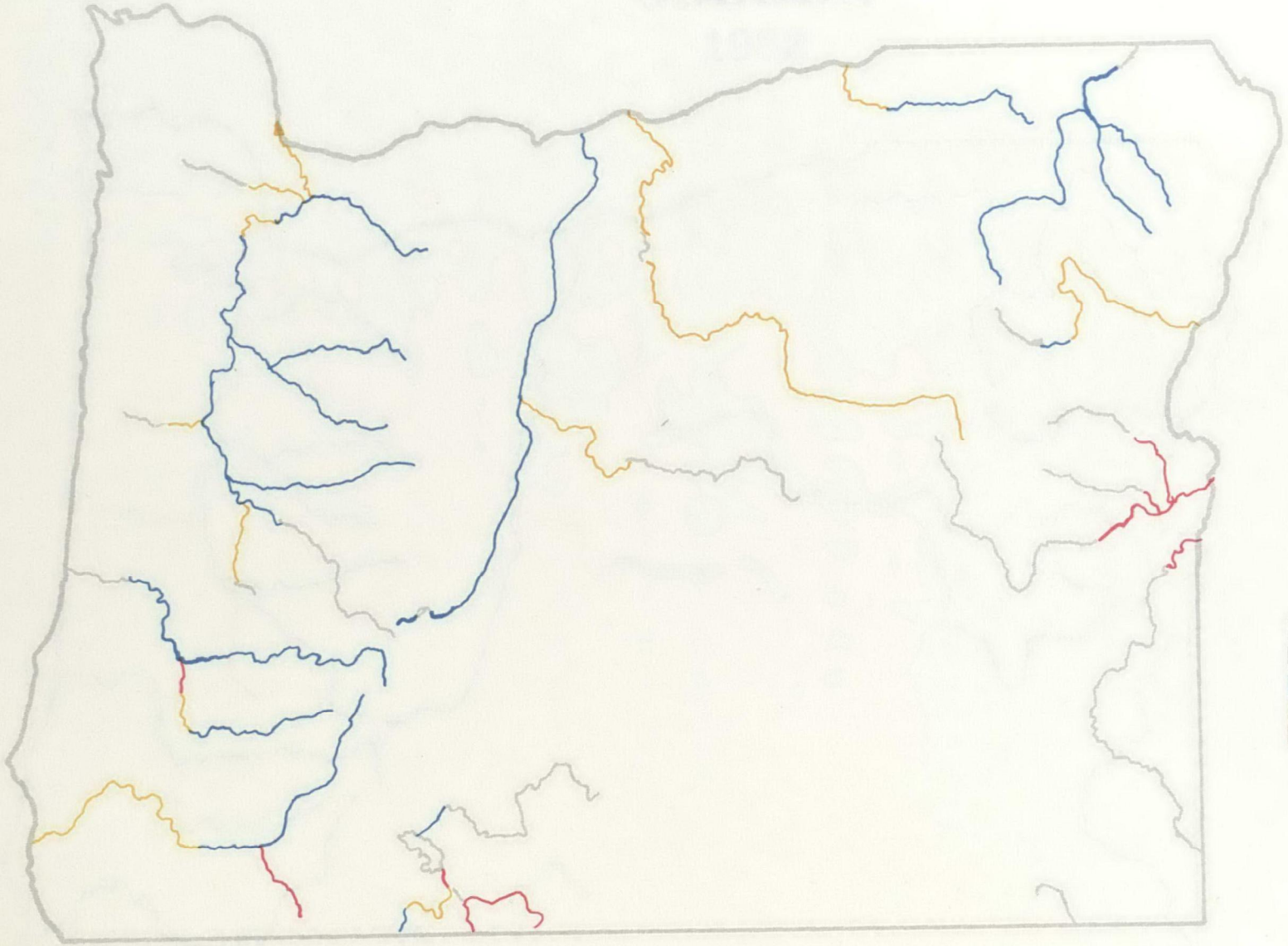
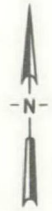
Mary M. Halliburton (503) 229-6099

DATE: October 14, 1983

OREGON
1972

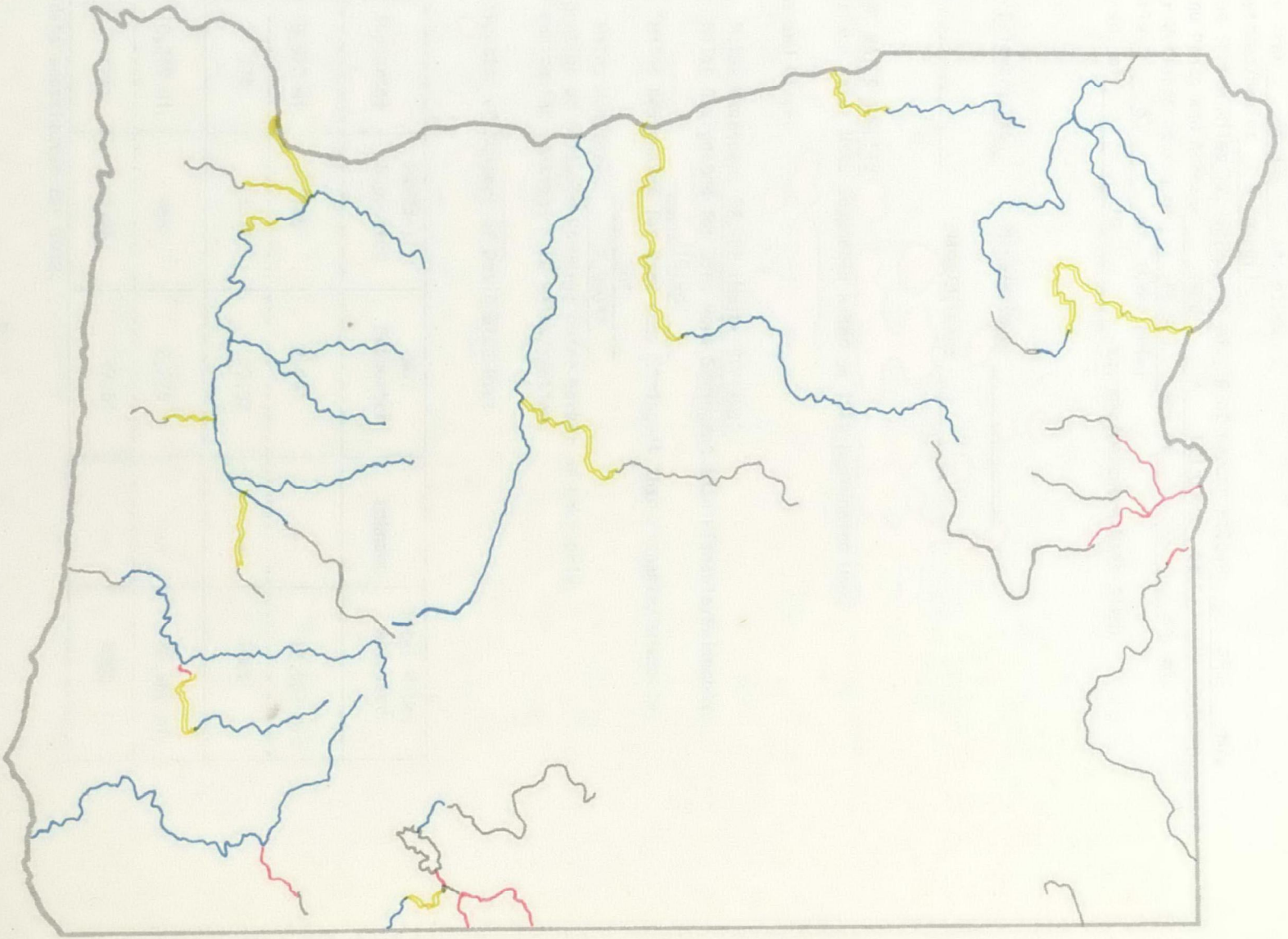




EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

OREGON
1982



EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Pennsylvania*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 11,800,766 1980 11,863,895
State Surface Area 45,333 sq. miles
# of River Systems/Basins 5 (major)
# of River and Stream Miles 12,962(major) mi.; # of Border Miles* 255 mi.
# of Lakes and Ponds and Acreage 2400 / 149,031 ac.
# of Marsh or Wetlands ac./sq.mi. 186,963 ac. or 0 sq. mi.
# of Coast Miles 63 mi. (Lake Erie)
# of Estuary sq. mi. 10 sq. mi.(Delaware-Main Stem)

*Border Rivers:

Name/Mileage Delaware/255 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 12,962 (Major Streams)
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 12,962
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 38*
   d. Miles Monitored: 2,900**

* Tidal portion of Delaware Estuary; outer harbor of Lake Erie.
** No. of monitoring stations x 10 miles/station.

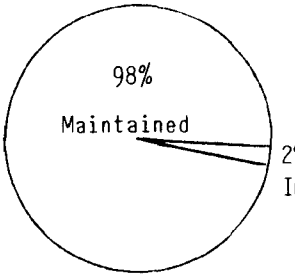
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972*	9,973 mi.	748	2,241	--	12,962 mi.
	77%	5.7%	17.3%	--	100%
1982	10,219 mi.	468	2,275	--	12,962 mi.
	79%	3.5%	17.5%	--	100%

* 1975 data substituted for 1972.

3. Changes In and Within Use Support Between 1972* and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	--	246
Miles Degraded:	--	--
Miles Maintained:	12,716	
Unknown:	--	

* 1975 data substituted for 1972

b. Lakes and Reservoirs

1. a. Acres Assessed: 67,562

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 67,562

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

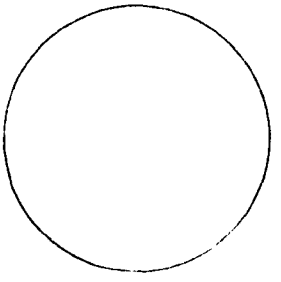
d. Acres Monitored: 0

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972				67,562	67,562 ac.
					100%
1982	38,318 ac.	28,104	1,140	0	67,562 ac.
	56.7%	41.6%	1.7%	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:	67,562	

C. Estuaries and/or Oceans

	Estuaries	Oceans
1. a. Square Miles/Miles Assessed:	10	10
b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	--
c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	10	--
d. Sq. Mi./Miles Monitored:	*	*

* Delaware River Basin Commission and Corps of Engineers have monitoring stations in the Delaware Estuary.

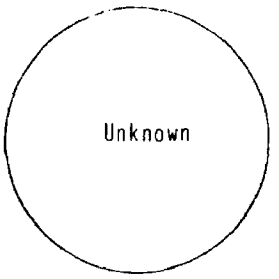
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	-	-	-	10	10
	%	-	-	100	100%
1982	-	-	-	10	10
	%	-	-	100	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

By Percentage

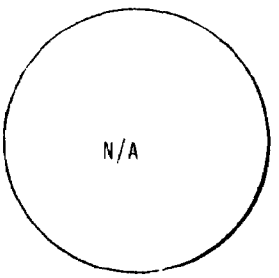


	Within Category	Change in Category
Sq.Mi.Improved:		
Sq.Mi.Degraded:		
Sq.Mi.Maintained:		
Unknown:		

*Additional information available from Delaware River Basin Commission.

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: 63

b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 63

c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0

d. Miles Monitored: 20*

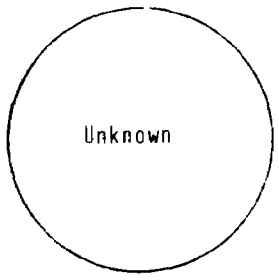
* 2 stations x 10 miles/station.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.			63	63 mi.
	%				100%
1982	63 mi.	-	-	-	63 mi.
	100%	-	-	-	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

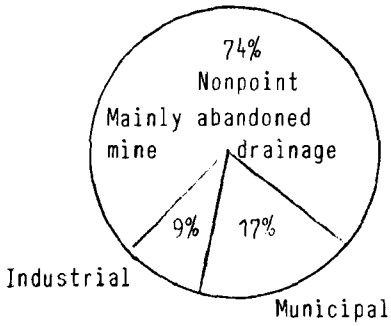


	Within Category	Change in Category
Miles Improved:	-	-
Miles Degraded:	-	-
Miles Maintained:	-	
Unknown:	63	

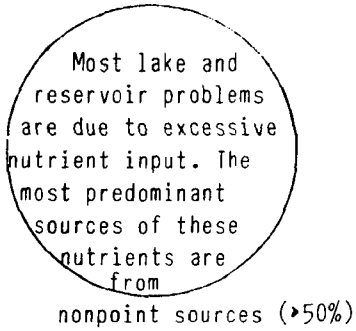
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

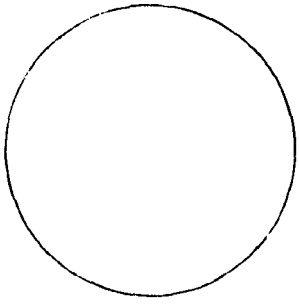
a. Streams and Rivers



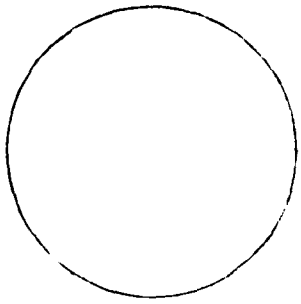
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X						X
Industrial					X	X			
Non-Point			X	X		X		X	X
Other (inc. natural)	X								

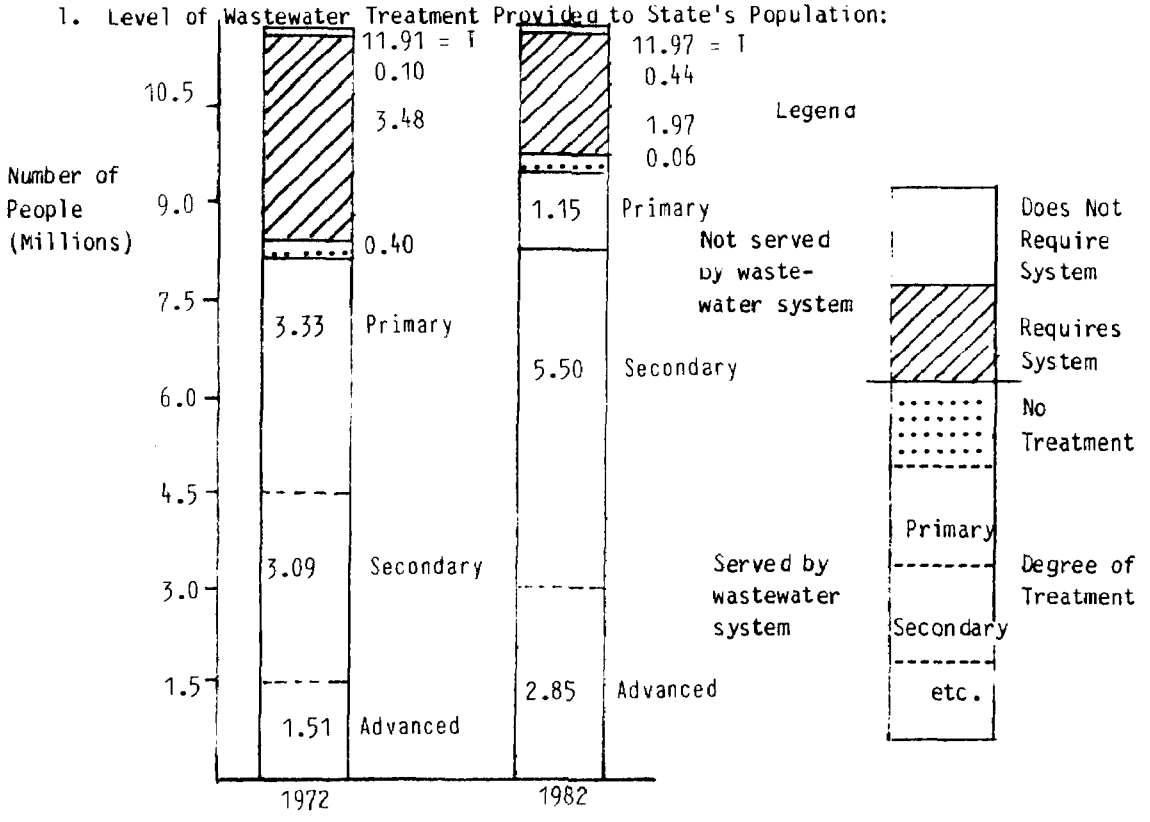
*Number of Stream/River Miles Affected by Toxics: 365
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

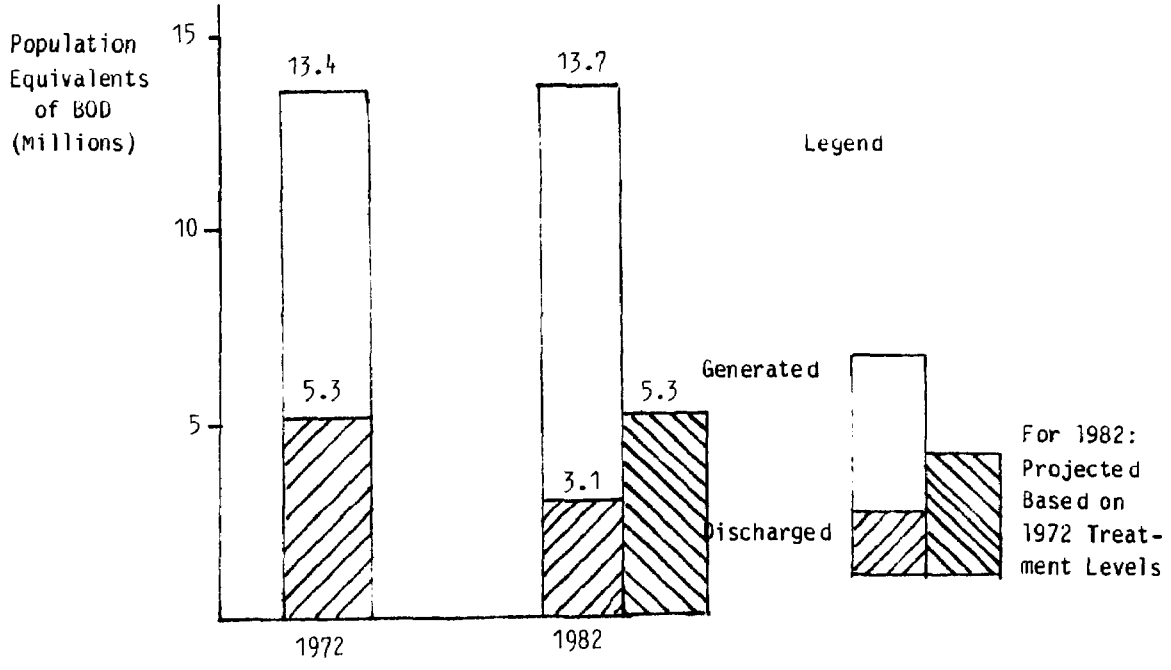
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

NOTE: No projection provided because population essentially did not change from 1972 to 1982.

3. Significant Municipal Facility Compliance

a.

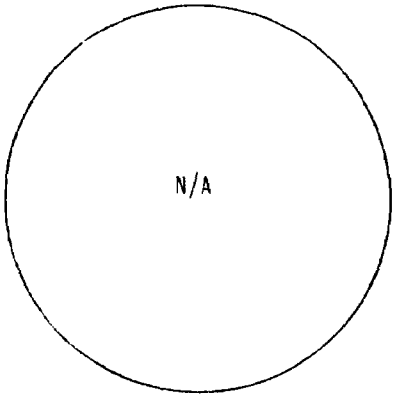
	1972	1982 Interim Permits	1982 Final Permits (Major Dischargers)
Facilities with Permits	Not Avail.	Not Available	218
Facilities Meeting 1982 Permit Requirements+	Not Avail.	Not Available	139
Percentage of Facilities for Which Requirements Being Met	Not Avail.	Not Available	64%
Percentage of Flow For Which Requirements Met+	Not Avail.	Not Available	Not Available
Facilities Needing Upgrading	Not Avail.	Not Available	Not Available

Total Permits in Effect in 1982: 578

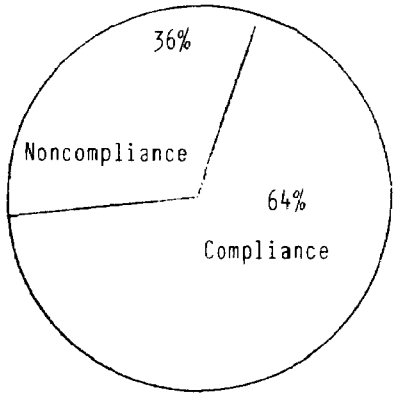
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

1982	1972	1982 Interim Permits	1982 Final Permits (Major Dischargers)
Facilities with Permits	Not Avail.	Not Available	211
Facilities Meeting 1982 Permit Requirements+	Not Avail.	Not Available	166
Percentage of Facilities for Which Requirements Being Met	Not Avail.	Not Available	79%
Percentage of Flow for Which Requirements Met+	Not Avail.	Not Available	Not Available

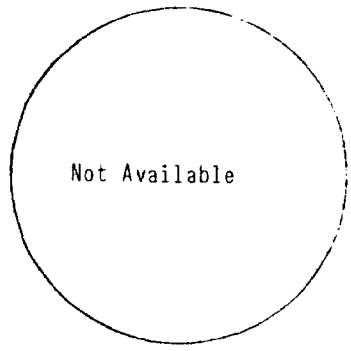
Total Permits in Effect in 1982: 5,847*

+Includes "No-Discharge" Facilities

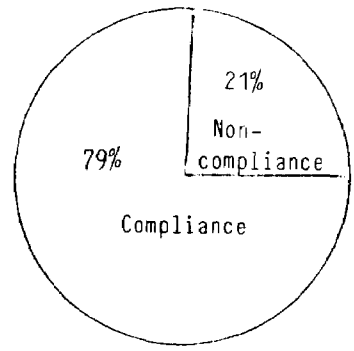
*(including pending applications)

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Pennsylvania has been concerned about non-point source pollution since the mid-1970's. In those days, non-point sources had a different name, but essentially it involved any pollution caused by storm water coming in contact with polluting materials.

In 1972, we initiated a program for controlling erosion and the subsequent sedimentation of our waterways. It did not matter that the erosion was caused by a construction activity, a tree harvesting operation or agricultural plowing and tilling. All earthmoving activities (i.e., any activity which disturbed the surface land) were required to control accelerated erosion on the site and to prevent sediment from reaching the waters of the Commonwealth.

In 1977, we began a program to assist farmers in managing their animal manures. This program sought to maximize the use of manure for its agronomic value and, as a secondary benefit, to control non-point source pollution from animal manures.

We have also initiated programs to control the use of herbicides in lakes and streams and to control the use of pesticides both in the agricultural and domestic setting.

Summary - Non-Point Source Pollution Control*

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent								
Primary Pollutants								

* Information not available

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The State's Clean Streams Law provides for administrative, civil, and criminal remedies for violations. A priority system is used to identify the most serious, willful, or chronic violators who then receive a high priority. All violations are brought to the attention of the violator, generally through a certified letter. This is done because a significant portion comply upon notification. An enforcement strategy involving one or more of the above remedies is developed for the remaining violators. The procedure is similar for both point and non-point source dischargers.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	5,017
Number of Pre-Administrative Actions:	Unknown
Number of Administrative Actions:	158*
Number of Judicial Actions:	54

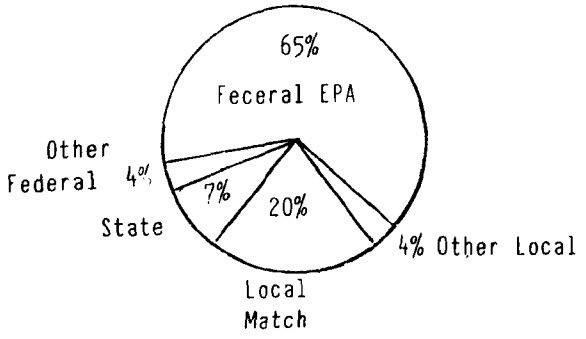
*Consent Orders; settlements

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 2,709.4 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,773.0 Million
Other Federal:	$ 104.3
State:	$ 191.1
Local Match:	$ 541.0
Other Local:	$ 100.0*

*Estimated

C. Program Activities

Monitoring

To conduct an ongoing assessment of ground and surface water quality to determine existing conditions and to estimate future trends, and to assess the compliance of wastewater treatment facilities with permit conditions, to oversee local agency implementation of the permit and enforcement requirements of the Sewage Facilities Act and to assess other activities to determine compliance with applicable laws and regulations.

Permitting

To establish effluent limitations for discharges to protect public health and to meet water quality and technology based standards; to assure that the design and construction of water pollution facilities achieve established limitations and standards.

Emergencies

To eliminate or minimize the danger or threat to public health or water quality uses through prompt response to water pollution instances, hazards and disasters.

Enforcement

To resolve water quality and public health problems by achieving compliance with permit conditions and applicable laws and regulations.

Planning

To develop and maintain water quality standards for the protection of water resources; and to develop, evaluate and maintain plans for the protection of public health and the achievement of water quality standards.

Program Management

To achieve water quality goals and objectives through planning, directing and evaluating program activities in an efficient and effective manner.

Administration

To provide clerical and non-technical support to the technical programs.

VI. SITE-SPECIFIC SUCCESSES

305b Success Story - Wapwallopen Creek Watershed (Luzerne County, PA)

Sixteen miles, 20% of the Wapwallopen Creek watershed including the main stem, two major tributaries, Bow Creek and Watering Run, and several small tributaries were being degraded by inadequately treated and untreated sewage and industrial waste. Fourteen sewage treatment plants and five industrial waste treatment plants of varying capacities and efficiencies discharged to these streams. Water quality within the affected area ranged from toxic to aquatic life to heavy organic enrichment to the point of total oxygen depletion. Fish kills were common at the polluted/unpolluted water interface as this zone became alternately habitable then uninhabitable.

Intensive investigations into the possibilities of inplant flow reduction and flow recycling were initiated. Stream and laboratory studies were conducted to determine effluent receiving capacities of the streams where specific criteria had not been established or fluctuated under differing stream conditions and where treatment costs to extremely low levels were prohibitive. And lastly, a regional sewage treatment plant was proposed.

The combined result of these measures was that by 1981 only two miles of the watershed was being degraded. By 1982, the remaining two miles were improved. Only one of the industrial waste plants remains. The remaining industrial waste treatment plants have either been eliminated through flow reduction and recycling or are connected to the region sewage treatment plant. Only one of the sewage treatment plants remains, 13 have been eliminated.

Watering Run and Bow Creek now support thriving brook and brown trout populations, as does Wapwallopen Creek. Stream investigations conducted on Wapwallopen Creek prior to and following operation of the regional STP indicate no adverse effects on Wapwallopen Creek.

NOTE: The Delaware River Basin Commission is providing a success story on the Delaware Estuary and the West Branch of the Delaware River directly to ASIWPCA.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Water pollution problems in PA over the last decade have been attributable to a variety of sources. In areas of the state with heavy industrial and population concentrations, sewage and industrial wastes are the major pollutional sources, with storm water and combined sewage discharges adding to the pollution problems. These problems are predominent in the southwestern and southeastern portions of the state. The major water pollution problem continues to be acid mine drainage primarily from abandoned mines. Over 75% of the 2,744 major stream miles that do not meet water quality standards are due to non-point pollution. The primary non-point pollutant is acid mine drainage, which has its greatest impact in the bituminous areas of western and central PA and in the anthracite areas of northeastern PA. Other concerns include pollution from oil and gas well drilling, and erosion and sedimentation from earthmoving and agricultural runoff.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

The acid mine drainage problem is widespread. It is estimated that over $2 billion would be required to abate this problem in PA.

AGENCY PREPARING REPORT: Dept. of Environmental Resources

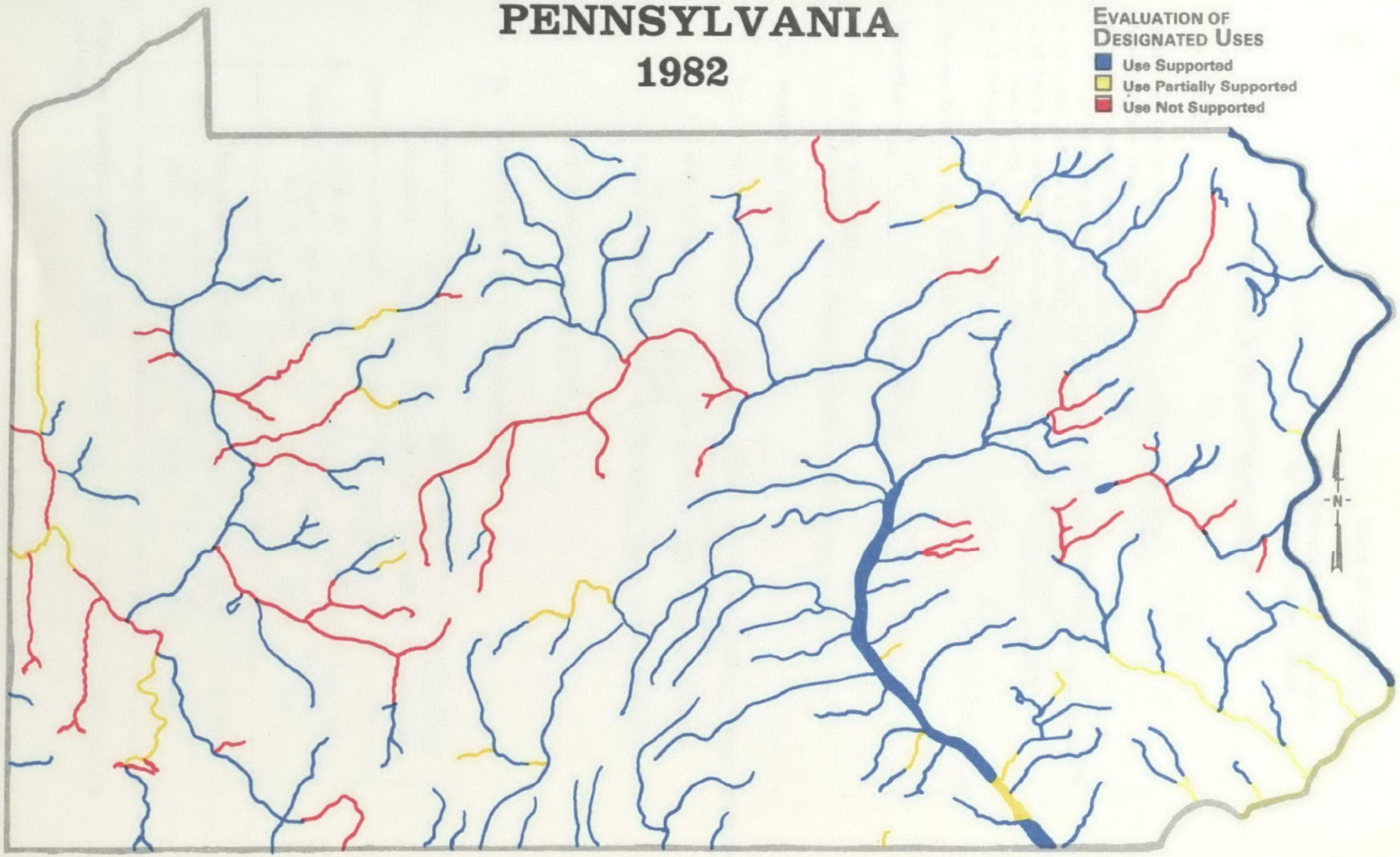
Bureau of Water Quality Management

CONTACT PERSON* & PHONE #: Lou Bercheni 717-787-2666

DATE: August 31, 1983

*or Cedric Karper 717-787-4317

PENNSYLVANIA
1982



State of Puerto Rico

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,712,033 1980 3,196,520
State Surface Area 3.420 sq. miles
# of River Systems/Basins 96
# of River and Stream Miles 3,534.27 mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage 19 / 7,250.1 ac.
# of Marsh or Wetlands ac./sq.mi. 15,011 ac. or _____ sq. mi.
# of Coast Miles 413.44 mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers: (NOT APPLICABLE)

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 3,367.16 (167.11 miles were excluded because practically no information exists)
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 3,367.16
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Miles Monitored: 2,147.47

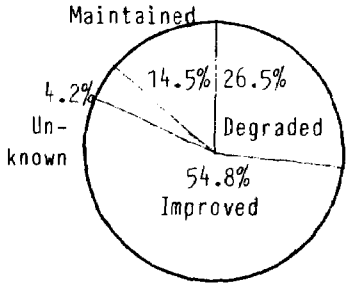
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972*	226.51 mi.	541.29	1,289.16	1,310.20	3,367.16 mi.
	6.7 %	16.1%	38.3%	38.9%	100%
1982	359.36 mi.	347.56	1,440.55	1,219.69	3,367.16 mi.
	10.7 %	10.30%	42.8%	36.2%	100%

*Used the available data for 1975. The data for early years are not statistically reliable.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	922.11	255.13
Miles Degraded:	166.67	401.33
Miles Maintained:	311.72	
Unknown:	90.51	

B. Lakes and Reservoirs

1. a. Acres Assessed: 7,250.1

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 7,250.1

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: --

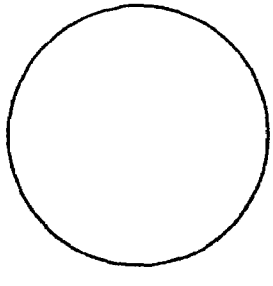
d. Acres Monitored: 3,751.8

2. Evaluation of Support of Designated Uses*

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
**1972	ac.				ac.
	%				100%
1982	618.0 ac.	3,422.3	3,209.8	--	7,250.1 ac.
	8.5%	47.2%	44.3%	--	100%

3. Changes In and Within Use Support 1972 - 1982**

By Percentage



	Within Category	Change in Category
Acres Improved:		
Acres Degraded:		
Acres Maintained:		
Unknown:		

*Best Professional Judgement

**No regular monitoring data available prior to 1981

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	_____	413.44
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	_____	303.82
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	_____	109.62
	d. Sq. Mi./Miles Monitored:	_____	413.44

2. Evaluation of Support of Designated Uses

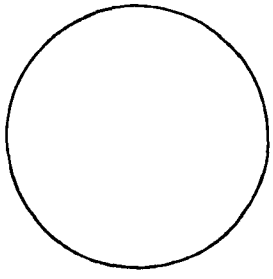
	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972*	349.79	60.08	3.57	--	413.44
	84.6%	14.5%	0.9%	--	100%
1982	316.79	47.49	49.16	--	413.44
	76.6%	11.5%	11.9%	--	100%

*Used the available data for 1975. The data for early years are not statistically reliable.

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

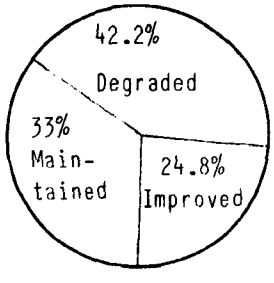
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	_____	_____
Sq.Mi.Degraded:	_____	_____
Sq.Mi.Maintained:	_____	
Unknown:	_____	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	77.43	25.26
Miles Degraded:	89.99	84.32
Miles Maintained:	136.44	
Unknown:	--	

D. Great Lakes (NOT APPLICABLE)

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

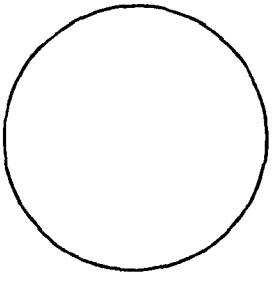
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

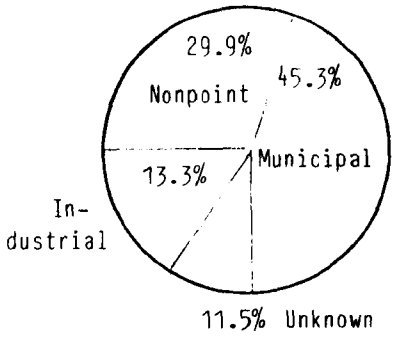


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

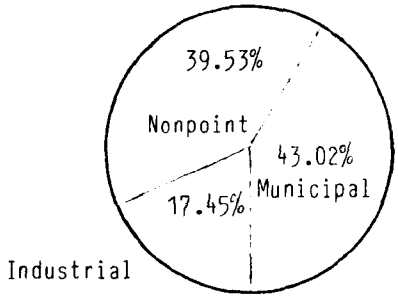
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

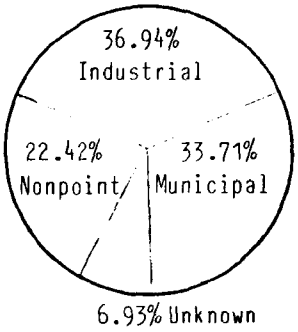
a. Streams and Rivers



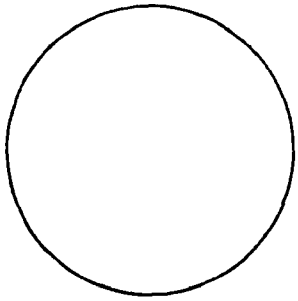
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	(1) Toxics*	Turb.	** Other	2 Most Serious
Municipal	X	X	X				X		C, D.O.
Industrial		X		X	X	X			D.O., Toxics
Non-Point	X		X				X	X	Nut., Other
Other (inc. natural)									

**Sediments (1) We know toxics are present in the discharges of industries

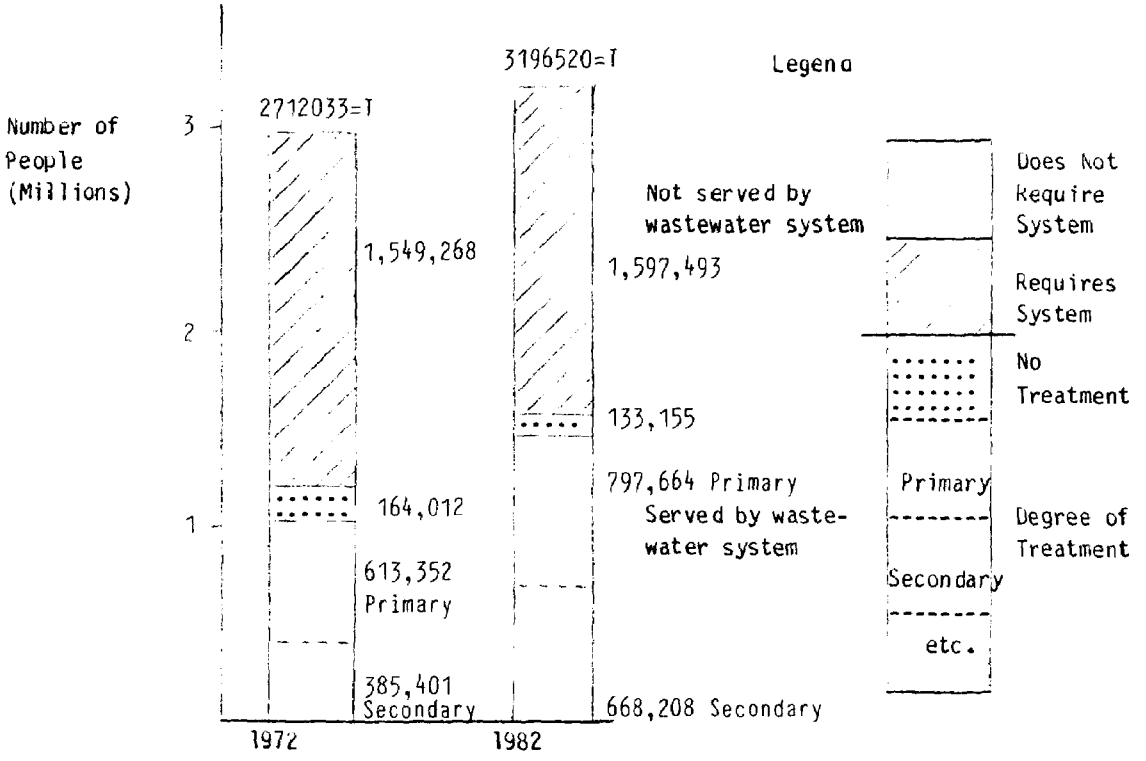
*Number of Stream/River Miles Affected by Toxics: Unknown
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: Unknown

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

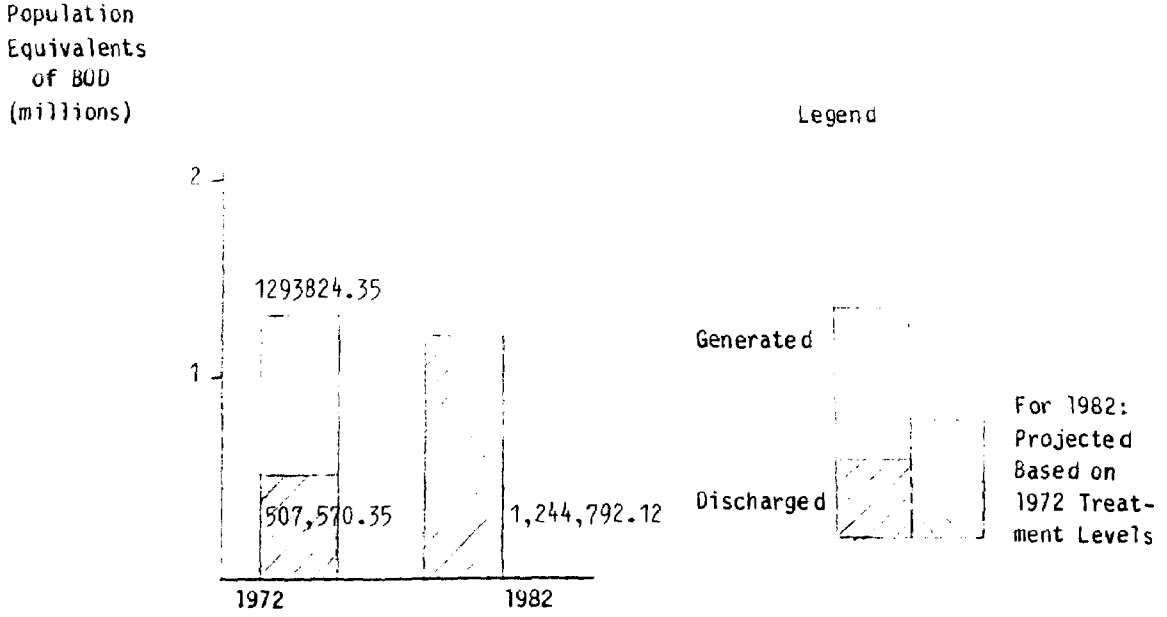
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



* In order to obtain the Population Equivalents the pounds of BOD per day were divided by 0.17 (this number is the constant used for BOD pounds per person per day given by our reference books).

* Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

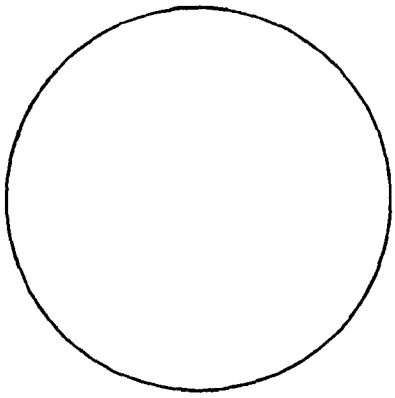
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	N/A	14	5
Facilities Meeting 1982 Permit Requirements[+]	N/A	0	0
Percentage of Facilities for Which Requirements Being Met	N/A	-	-
Percentage of Flow For Which Requirements Met[+]	N/A	-	-
Facilities Needing Upgrading	N/A	14	5

Total Permits in Effect in 1982: 99

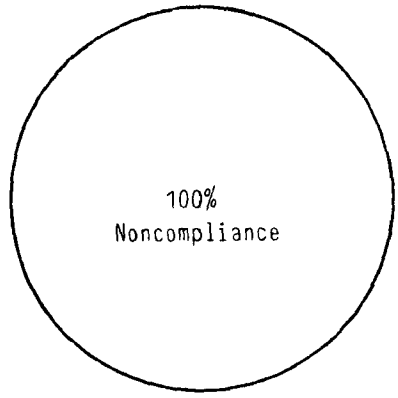
[+]Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

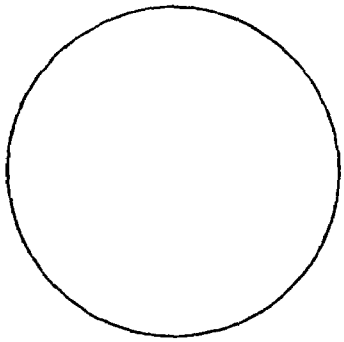
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	N/A	9	45
Facilities Meeting 1982 Permit Requirements[+]	N/A	8	27
Percentage of Facilities for Which Requirements Being Met	N/A	88.9%	64.8%
Percentage of Flow for Which Requirements Met[+]	N/A	99.9%	57.33%

Total Permits in Effect in 1982: 136

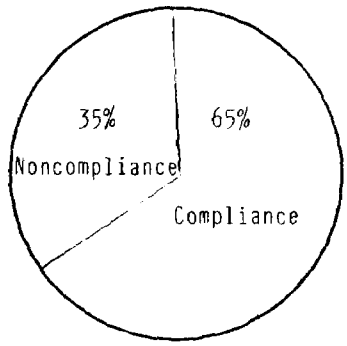
[+]Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Puerto Rico's main Non Point Source agricultural pollution problems are inadequate animal waste management and improper application of fertilizer and use of pesticides.

An Animal Waste Management Program has been established which requires each farmer to implement a Water Quality Plan for their enterprise. Certificates are issued to farmers to maintain control of adequate implementation of these Best Management Practices. Priority has been given to the establishment of the same in dairies. Coordination with agencies related to this activity has been established in order to offer regulatory, financial and educational support to the Program.

Construction and mining activities are also causing severe Non Point Source Pollution problems throughout the Island.

In construction, the variation of the natural shape of lands and slopes changes drainage patterns and eliminates protective vegetation, causing excessive erosion and sedimentation of nearby water bodies. Additionally unprotected construction materials and residues of equipment maintenance materials, such as oil, are also dragged along by runoff.

Puerto Rico's mining activity which is mainly limited to the extraction of construction materials such as sand and gravel, rock, etc., is often carried out at the margin of the water bodies and lacks adequate controls in order to protect the same.

A Program requesting EQB permits for both activities in coordination with the Department of Natural Resources, and the Rules and Permits Administration is in the planning stage.

Fecal contamination from clandestine sanitary sewer connections to storm drains is the most serious pollution problem posed by urban runoff. EQB is operating a Program to detect and order correction of these connections, which concentrates in the most affected areas.

The following Section 208 demonstrative projects in order to develop local Non Point Source Control programs were implemented by EQB.

Non Point Source Control Program for La Plata Watershed regarding Fertilizers and Pesticides.

Operational Program Development for Animal Waste Management.

Guidelines for the Development of a Strategy to Protect Underground Waters.

Non Point Source Control Program for Loiza Lake and La Plata River Basin which included agricultural, construction and mining activities.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent*	S/W	S/W	N/A	M/L	S/W	N/A	I/L	S/W
Primary Pollutants**	C; OxDe SS; T	C;P;SS OxDe;T	N/A	SS	SS,T	N/A	Sal	C,SS,M,T

*Basically Sand and Gravel extraction activities **Data based on best professional judgement

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Environmental Quality Board (EQB), current approach to enforcement against violations of state and federal water pollution control laws and regulations is accomplished through the following activities:

- Twenty four (24) hour sampling inspections to industrial effluents
- Evaluation of self discharge monitoring reports (DMR) submitted by non-municipal or municipal facilities required by NPDES permits
- Follow-up of the Schedules of Compliance issued by EPA or EQB
- Inspections of the non-filers (industries which discharge wastewater to waterbodies without NPDES permits)
- Execution of dye and smoke test to verify illegal connections of sanitary sewer systems and illegal interconnections between storm and sanitary sewer systems.
- Inspections to the point and non-point source complaints.

If one or more serious violations are found as a result of any of the above mentioned activities, enforcement action is initiated promptly against the point or non-point source facility which has executed the violation. The enforcement action will vary in degree depending on the nature and seriousness of the violation. Compliance with state and federal pollution control laws will be sought through the use of pre-administrative hearings held between EQB and the violator; administrative hearings; imposition of fines; issuance of compliance schedules; and in case of severe violations, NPDES Permits may be terminated or the violating facility shutdown.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	19M + 19 (NM) = 38
Number of Pre-Administrative Actions:	1M + 13 (NM) = 14
Number of Administrative Actions:	0M + 6 (NM) = 6
Number of Judicial Actions:	18M + 0NM = 18

B. Municipal Facility Investment

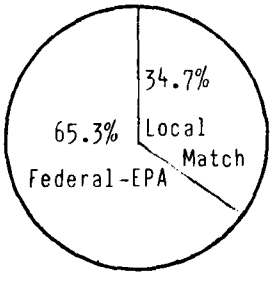
1972 - 1982

Cumulative Capital Investment for Municipal Wastewater Facilities

By Source of Funds

TOTAL INVESTMENT = $ 500.74 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 327.096,449 Million
Other Federal:	$
State:	$
Local Match:	$ 173.645,009
Other Local:	$

C. Program Activities

1. Planning - Main plans developed under a continuing planning process (CPP) include the Comprehensive Water Quality Management Plan for Puerto Rico 1970-2020 and thirteen Basin Plans, one for each of the regions of the island. These two plans emphasize point sources of pollution and water bodies classifications. A third plan, Water Quality Management Plan for the Island of Puerto Rico concentrated mainly in the control of non-point sources of pollution. The abatement strategies developed under these plans became elements of the Continuing Planning Process. Prototype or model programs have been developed on animal wastes management, underground water protection, and pollution control practices for construction, mining and agriculture related activities. Also, main elements of our planning efforts are the development of a Priority System and its application for a resulting Priority List of projects for the collection, treatment and disposal of sewage waters. A sub-program has been dealing specifically with the wastewater treatment and disposal in isolated rural communities.

2. Monitoring - Fifty seven coastal monitoring stations are sampled once every two months and analyzed for dissolved oxygen, nitrogen, phosphorus, suspended solids, nitrates and nitrites, temperature, pH, turbidity, color, salinity, fecal coliforms, a particular metal and, in some stations, oil, and grease. Fifty six surface stations are monitored by the United States Geological Survey under contract with this Board, every two months, for the following parameters: Temperature, pH, Specific Conductance, Alkalinity, Dissolved Oxygen, Fecal Coliform, Fecal Streptocacus, Chemical Oxygen Demand, Suspended Solids, Turbidity, Organic Nitrogen, Ammonia Nitrogen, Nitrate, Nitrite, Total phosphorus, Dissolved Solids, (on every other visit) and trace metals. Other studies performed include Time of Travel Studies and twenty-four hours sampling in point sources effluent discharges.

3. Permitting - The National Pollutant Discharge Elimination System has as its main objective the control of effluent discharges through discharge permits, discharge monitoring reports, compliance evaluation inspections and compliance sampling inspections of all point sources under this permit program. An underground injection permitting program has been in planning stage. Developed state regulations and primacy request package will be submitted to the Environmental Protection Agency in the next days.

4. Emergency Response - The Puerto Rico Oil and Hazardous Substances Pollution Contingency Plan has been developed, providing a pattern of coordinated and integrated response by the Government of Puerto Rico with Departments and Agencies of the Federal Government to protect the environment and encourage the development of capabilities to handle pollution spills.

5. Lakes Clean-Up - A priority system was developed and an order established for lakes in the Island to be eligible for federal funds in order to conduct diagnostic-feasibility of restoration studies in case of availability of funds. A diagnostic-feasibility study was developed in Lago La Plata, which had first priority.

6. Complaints and Surveillance - Approximately 500 water related complaints coming from the general public are studied and attended every year by EQB's technicians.

7. Water Bodies Restoration - A staff of five technicians is devoted to restoration of polluted water bodies, giving priority to public use. Main problems being solved include sanitary-storm sewer interconnections and illegal discharges.

8. Public Participation - Public participation activities include celebration of public meetings and hearings, public notices, conferences and establishment of advisors committees for the different programs. The public participation activities are usually celebrated in the affected areas.

VI. SITE-SPECIFIC SUCCESSES

Condado Beach Restoring Program

After seven (7) years of research, monitoring, and corrective work to eliminate the fecal coliforms pollution problem in the Condado Beach, this sector was restored for the public use. The Condado Beach was affected by illegal connections of sanitary sewer systems and interconnections between storm and sanitary sewer systems which reached the beach. Water quality analyses in Condado beach showed that in all stations for 1980, the fecal coliforms levels were below the standard in comparison with 1979 as shown in the Figure 1.

Isla Verde Beach Restoring Program

During January 1980 the Environmental Quality Board (EQB) intensified the restoring activities in the Isla Verde Beach area in order to control the pollution problems identified in previous beach years. Some of these problems are: wastewaters that reach the beach area, illegal interconnectons from sanitary sewer systems to storm sewers, sanitary manholes over flowing and the presence of solid wastes in the storm sewers. Approximately 306 pollutant discharges were identified and corrected.

To verify the scope of the corrective measures, an intensive bacteriological study was conducted by June 22-26, 1981. Samples were taken for fecal coliforms determinations. The results of this study are shown in Table 1. As we can see the fecal colforms geometric mean never exceed the 200 col./100 ml level, which is the standard established for coastal waters within the classification S B (coastal waters in which the human body may come in direct contact with the water).

In addition to the analysis of samples taken in this area, as part of EQB's coastal water monitoring program, shows that fecal coliforms levels are below the standard.

We can conclude that Isla Verde Beach area is free of significant fecal pollution problems, in spite of the high population density, and the different recreational, touristic and commercial activities within the area.

Figure 1

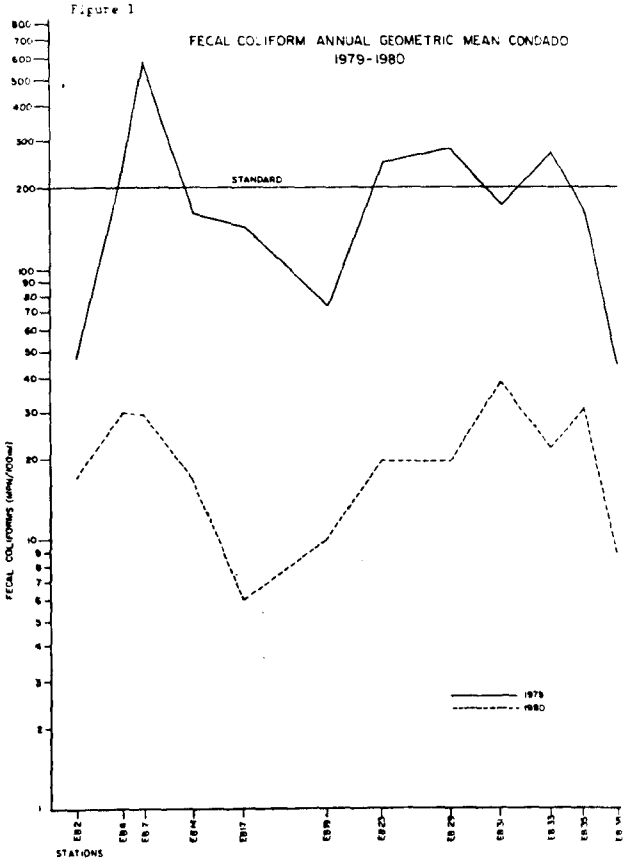


TABLE 1
ISLA VERDE BEACH AREA BACTERIOLOGICAL STUDY, 1981
FECAL COLIFORMS (COL./100 ML)
JUNE 1981

STATION	6/22/81	6/23/81	6/24/81	6/25/81	6/26/81	Geometric Mean
001	600	92	190	310	16	139
002	16	16	3	0	0	4
003	33	2	3	0	3	3
004	1	16	6	7	3	4
005	160	11	5	4	3	10
006	8	8	4	2	16	6
007	0	406	7	27	2	11
008	9	70	15	2	108	18
009	4	3	1	8	7	4
010	9	16	3	2	6	5

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The groundwater sources protection has been of special concern to the state in the last years. A groundwater prototype or model project was developed in the north aquifers to identify main pollution problems and purpose abatement alternatives and water quality standards. Also, an Underground Injection Control Program was developed. This UIC Program developed state regulations and plans for a permits program implementation. In the next days these documents will be formally submitted to the EPA requesting delegation to the UIC Program to the State.

Of major concern to the state has also been the problem of wastewaters in our small and/or isolated communities. Main activities developed have been the development of an inventory of communities, a priority system and list for possible future wastewaters management projects in these communities, a prototype or model planning and design project in a rural community and five additional planning projects in planning areas previously delineated. The Small Communities Program has confronted a lower progress in the last year due to lack of sufficient local funds to match the federal funds and the extraordinary increasing costs of the already planned projects. An interagency committee is actually working to propose alternative deal with this problems and a strategy for future orientation of this program.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of population and
X population and industrial growth.
X - Groundwater resource quality protection or supply assurance.
X - Identification and control of toxic pollutants from industrial and non-point sources.
_____ - Municipal wastewater plant operation, maintenance, and rehabilitation.
_____ - Pollution arising from abandoned industrial and/or mining facilities.

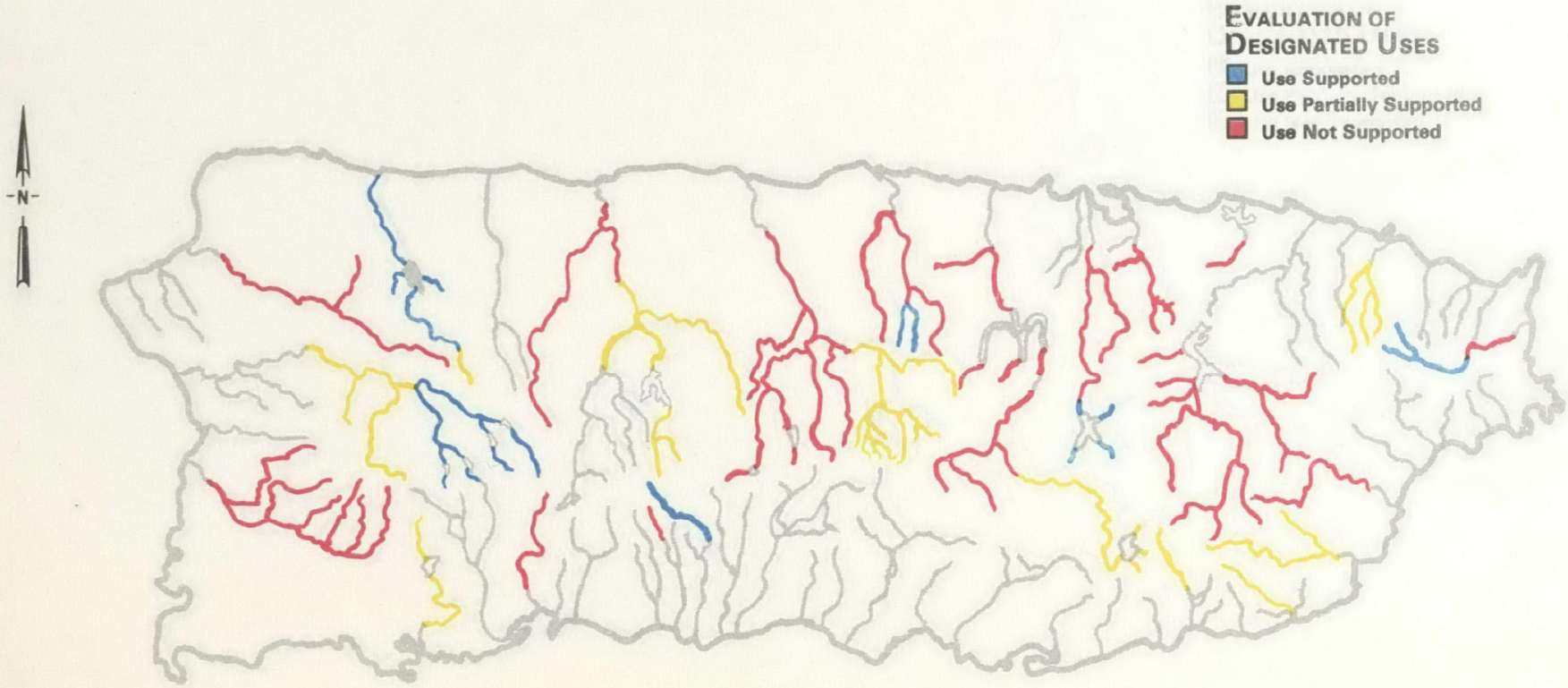
AGENCY PREPARING REPORT: Environmental Quality Board

Mr. Tomas Rivera

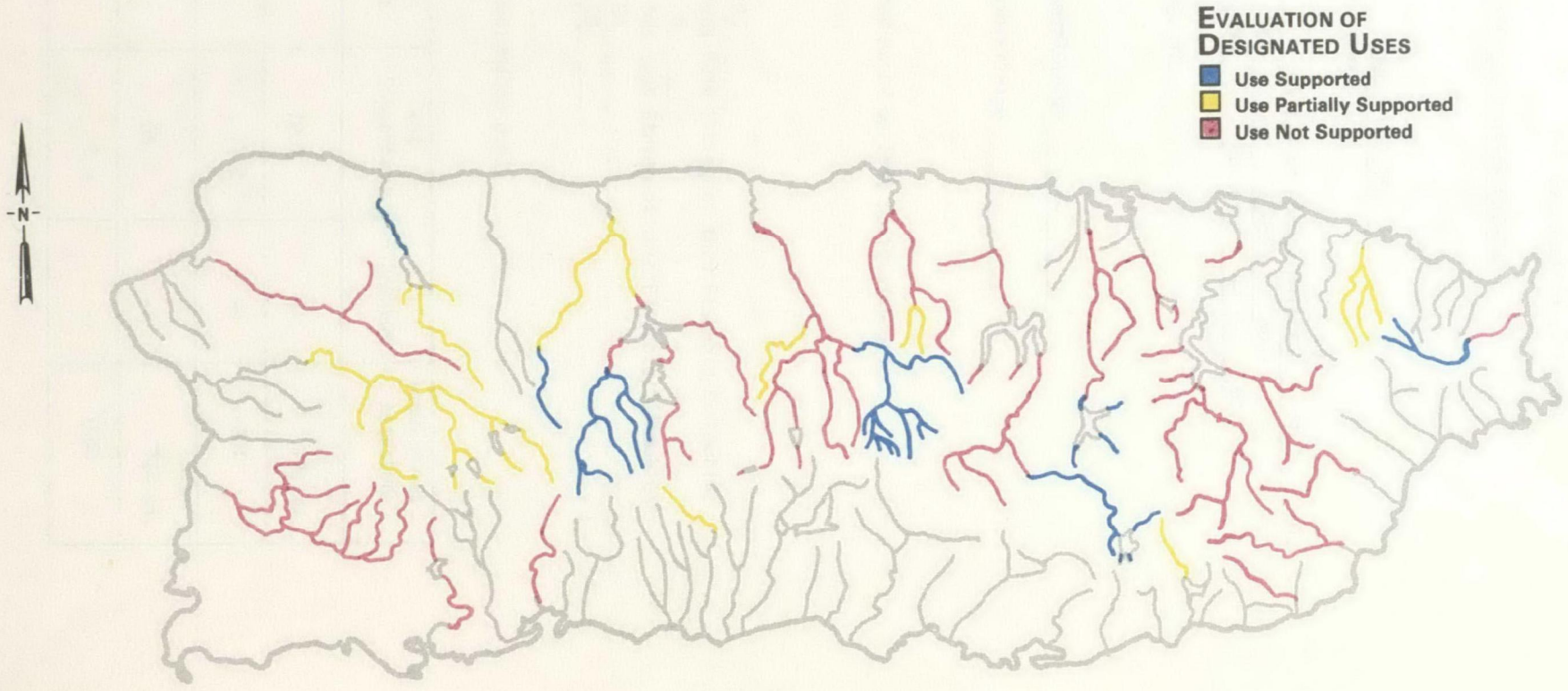
CONTACT PERSON & PHONE #: (809) 723-0733

DATE: September 9, 1983

PUERTO RICO
1972



PUERTO RICO
1982



State of Rhode Island*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 949,723 1980 947,154
State Surface Area 1,214 sq. miles
# of River Systems/Basins 7
# of River and Stream Miles 724 mi.; # of Border Miles* 12.3 mi.
# of Lakes and Ponds and Acreage 357 / 18,432 ac.
# of Marsh or Wetlands ac./sq.mi. 45,668 ac. or -- sq. mi.
# of Coast Miles 420 mi.
# of Estuary sq. mi. 183 sq. mi.

*Border Rivers:

Name/Mileage Pawcatuck/10 Name/Mileage --

Name/Mileage Runnins/2.3 Name/Mileage --

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

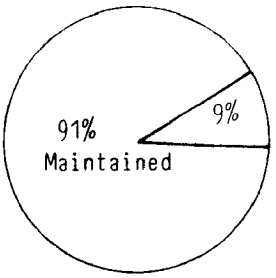
1. a. Miles Assessed: 724
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 276
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 81
   d. Miles Monitored: 109

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	627.8 mi.	18.1	78.1	--	724 mi.
	87 %	2 %	11 %	--	100%
1982	667.0 mi.	22.3	34.7	--	724 mi.
	92 %	3 %	5 %	--	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	19	45
Miles Degraded:	0	0
Miles Maintained:	660	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 16,463

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 7,203

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 379

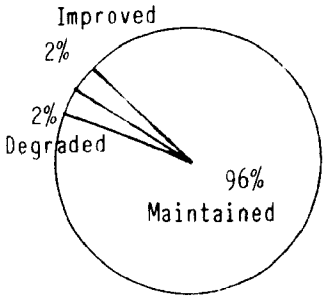
d. Acres Monitored: 7,815

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	15,843 ac.	489	131	0	16,463 ac.
	96 %	3 %	1 %	--	100%
1982	15,990 ac.	473	0	0	16,463 ac.
	97 %	3 %	0 %	--	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	269	131
Acres Degraded:	312	0
Acres Maintained:	15,751	
Unknown:	0	

C. Estuaries and/or Oceans

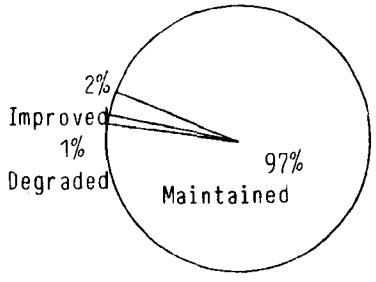
		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	256	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	29	/
	d. Sq. Mi./Miles Monitored:	183	/

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	230	15	11	0	256
	90 %	6 %	4 %	0	100%
1982	231	16	9	0	256
	90 %	6 %	4 %	0	100%

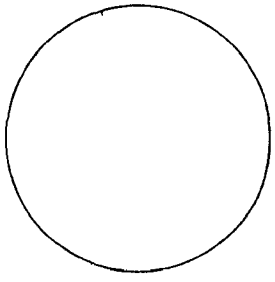
3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	4	2
Sq.Mi.Degraded:	0	2
Sq.Mi.Maintained:	248	
Unknown:	0	

b. Oceans
By Percentage



	Within Category	Change in Category
Miles Improved:		
Miles Degraded:		
Miles Maintained:		
Unknown:		

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

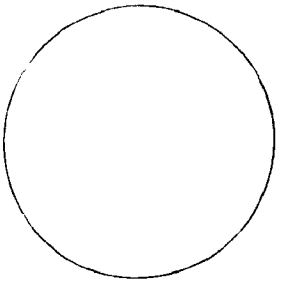
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

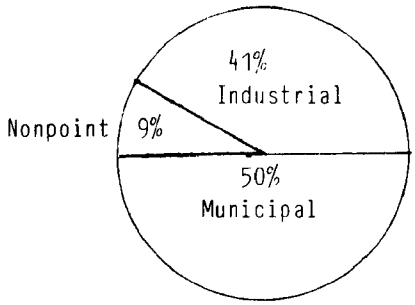


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

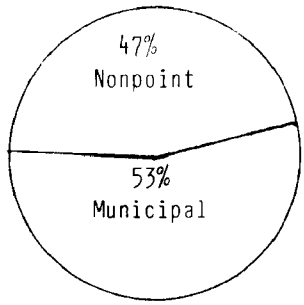
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

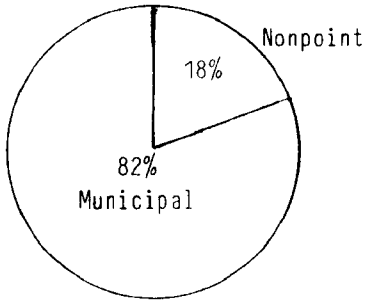
a. Streams and Rivers



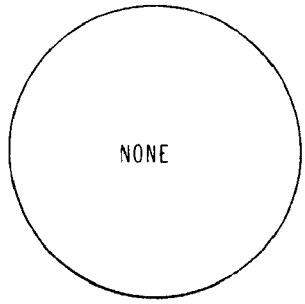
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			X			DO/Coliform
Industrial		X			X	X			DO/Toxics
Non-Point	X		X	X			X		Coli./Turb.
Other (inc. natural)									

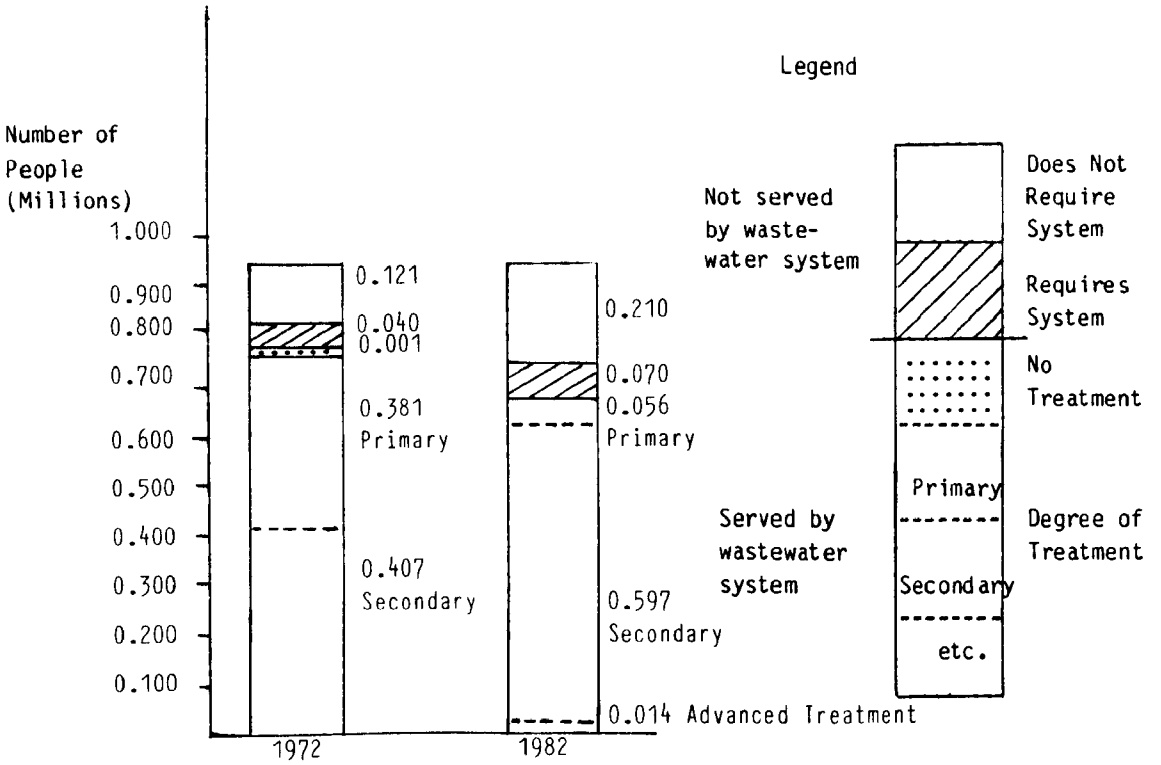
*Number of Stream/River Miles Affected by Toxics: 16
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: 8.78
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

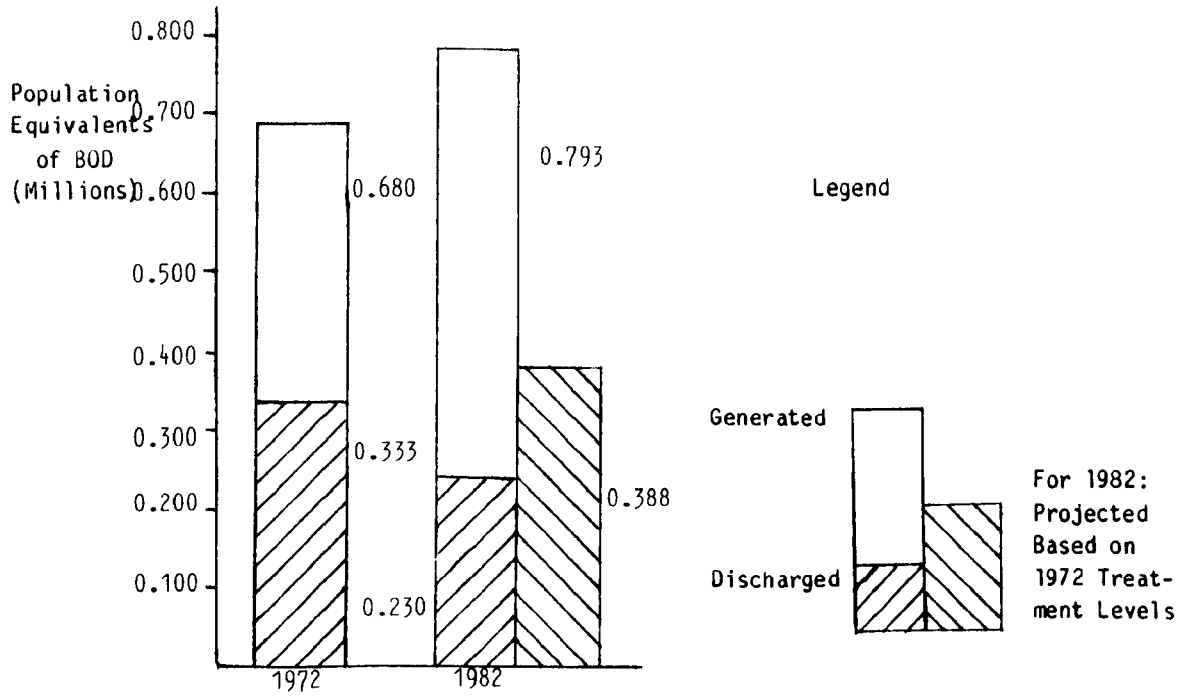
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

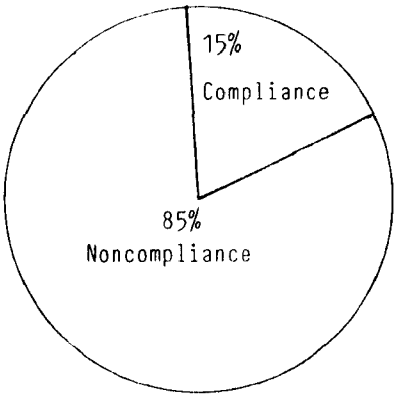
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	13	7	6
Facilities Meeting 1982 Permit Requirements+	2	3	6
Percentage of Facilities for Which Requirements Being Met	15 %	43 %	100 %
Percentage of Flow For Which Requirements Met+	8 %	16 %	100 %
Facilities Needing Upgrading	13	7	0

Total Permits in Effect in 1982: 31

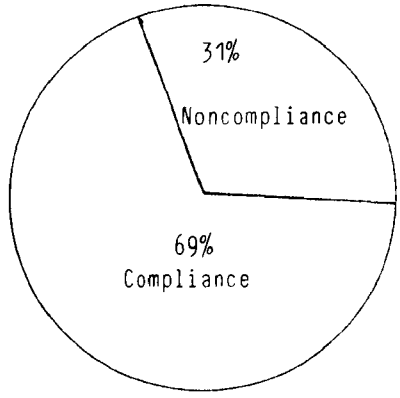
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



8. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	*	2	16
Facilities Meeting 1982 Permit Requirements+	*	1	14
Percentage of Facilities for Which Requirements Being Met	*	50 %	88 %
Percentage of Flow for Which Requirements Met+	*	50 %	35 %

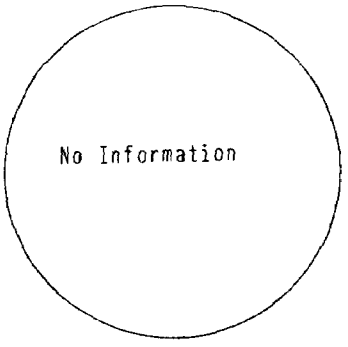
Total Permits in Effect in 1982: 104

+Includes "No-Discharge" Facilities

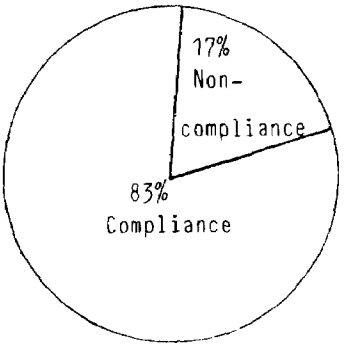
*No information

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Rhode Island is the second most densely populated state in the Union. Its population is largely concentrated in urban and suburban areas, although recent trends have shown a migration to more rural areas.

Although the extent of urban runoff non-point pollution is not fully known, the generally poor water quality condition of urban streams that do not have significant point sources of pollution is evidence that the problem is a real issue. All future Rhode Island river basin plans will include comprehensive planning level studies of this problem.

New developments in rural areas that use retention basins for maintenance of pre-development run-off conditions are now being required to modify these basins to also provide some degree of sedimentation. These requirements are made on a case-by-case basis prior to issuance of a water quality certification for the project, as no uniform standards have yet been adopted.

Non-point source coliform contamination of shellfishing areas adjacent to residential developments has resulted in closure of some of these areas to harvesting. No adequate solution to this problem has yet been determined.

Application of the state's wetlands law mitigates the serious problems related to construction and hydro power projects, both of which receive an extensive review process and construction supervision.

Land disposal of wastes has resulted in a few serious problems regarding both ground and surface waters. Many other areas receive minor to moderate impacts from this activity.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	I/L	N/A	I/L	M/W	M/L	N/A	M/L
Primary Pollutants	C,M,Nut, SS,O*	SS,T,O*	--	SS,T Note 1	SS,T	LoFlo OxDe		M,Nut, pH OxDe, O**

* Hydrocarbons ** toxic organic compounds

Note 1 - Sand and gravel operations

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

Rhode Island's approach to enforcement has always been founded in close monitoring of effluent quality. The technicians conducting our monitoring programs are highly qualified and often resolve operational problems in the course of their inspections. If a violation is not resolved immediately, written notification of noncompliance is sent to the discharger. Meetings and/or hearings are the next step in the process. If sufficient progress is not made toward correction of the problem, formal legal proceedings are undertaken. Rhode Island adopted regulations for Operation and Maintenance of WWTF in 1979. As Rhode Island does not yet have an NPDES based system, these regulations are the main tool used against improper WWTF operations.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

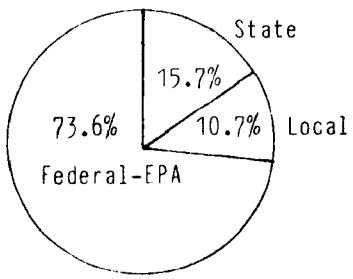
Total Number of Facilities:	7
Number of Pre-Administrative Actions:	2
Number of Administrative Actions:	5
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 262.927 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 193.642 Million
Other Federal:	$ unknown
State:	$ 41.215
Local Match:	$ 28.07
Other Local:	$ unknown

C. Program Activities

1974 - Biological methods employing the use of artificial substrates began to be utilized.

1977 - The first phase of the Water Quality Management Plans for 7 river basins in the state was completed as required by the Clean Water Act. The 7 basin plans were adopted as the water quality element of the State Guide Plan in 1978 and were approved by the EPA.

1979 - The Division of Water Resources began an in-house baseline survey of several of the larger lakes and ponds under the monitoring program.

- Monitoring programs were set up to assess the environmental effects of known hazardous waste sites in Rhode Island.

- A Surface Impoundment Assessment (SIA) of Rhode Island waste pits, ponds, and lagoons was completed (included a rating system for judging the potential hazards of groundwater contamination but involved no groundwater water quality sampling and should therefore be considered an inventory report).

- The Oil Spill Contingency Plan was updated with a contingency plan for hazardous materials included, which in 1981 was expanded as a separate document.

- A Contract was made with USGS for water quality trend monitoring.

- The bathing area sampling program was expanded to include weekly sampling throughout the bathing season of problem areas.

- The 208 Water Quality Management Plan for Rhode Island was completed. The plan deals primarily with land use impacts on water quality.

1980 - A Used Oil Recovery Program was instituted.

- The Rhode Island Underground Water Source Protection Program was initiated and is currently being developed by the Division of Water Resources with funding support by EPA.

1981 - Rhode Island assumed major responsibilities in the construction grants program, having been delegated responsibility by EPA for supervision of design and construction of wastewater treatment facilities.

- The shellfish monitoring program was expanded [upgraded to 2 sampling dates/ week on a year-round basis (weather permitting) instead of special classification surveys held only in the summer].

- The Division of Water Resources began technical training seminars for wastewater treatment plant operators.

1983 - Rhode Island is in the process of assuming delegation of the National Pollutant Discharge Elimination System (NPDES) permit program.

VI. SITE-SPECIFIC SUCCESSES

Blackstone River. With the upgrading to secondary treatment of one wastewater treatment facility in 1976 and another in 1978, the Blackstone River's water quality has improved. Water survey data indicated an improvement in both BOD and DO, and on the basis of the surveys it was concluded that this 6 mile segment of the Blackstone River has improved from Class D to Class C.

Woonasquatucket River. In 1978, a secondary treatment plant was completed, replacing raw discharges to the Woonasquatucket River. Intensive monitoring surveys between 1974 and 1979 showed significant reduction in total and fecal coliform bacteria, indicating the elimination of raw sewage discharges upstream. When the sewage discharges were eliminated, the segment of the river immediately upstream of the wastewater treatment facility was upgraded from Class C to Class B.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

On-Site Disposal - Beginning in 1967, the state assumed regulatory control over design and construction of all new individual sewage disposal systems. This process was established because of inconsistencies in local regulations which led to inadequate public health controls. Over the last decade, the procedures and regulations have been revised several times in order to improve environmental protection in developing areas.

Wetlands Protection - In 1971 and 1974 the state passed comprehensive wetlands protection acts which protect wetland areas from unnecessary or undesirable drainage, excavation, filling, encroachment, or any other forms of disturbance or destruction.

Coastal Zone Management - In 1971, the Rhode Island Coastal Zone Management Council was formed. This agency regulates all development in the coastal area. Administration of CRMC programs is carried out by operational division of Rhode Island Department of Environmental Management.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- _____ - Pollution arising from abandoned industrial and/or mining facilities.

Combined Sewer Overflows - Combined Sewer Overflows and their effects on major shellfishing areas of Narragansett Bay remain a major concern. There are four current construction grants projects in the Providence area which would provide some degree of relief of the CSO problem.

Development Pressures - Rhode Island is generally experiencing a migration from urban and suburban areas that have sewerage systems to rural areas that do not. Although state approval is required for all individual sewage disposal system permits, and additional state levels of control apply to wetlands or coastal areas, development pressures continue to increase. Water quality issues remain to be studied in greater detail.

Toxic Pollutants - Although this problem has been around for some time, official and public awareness has become greater in recent years. The issues precede our knowledge, and will remain a problem for regulations until more information is known. Specific problems in Rhode Island include: (1) levels of toxics in industrial discharges to waterways and publically owned treatment works and (2) land disposal practices which involve toxic materials.

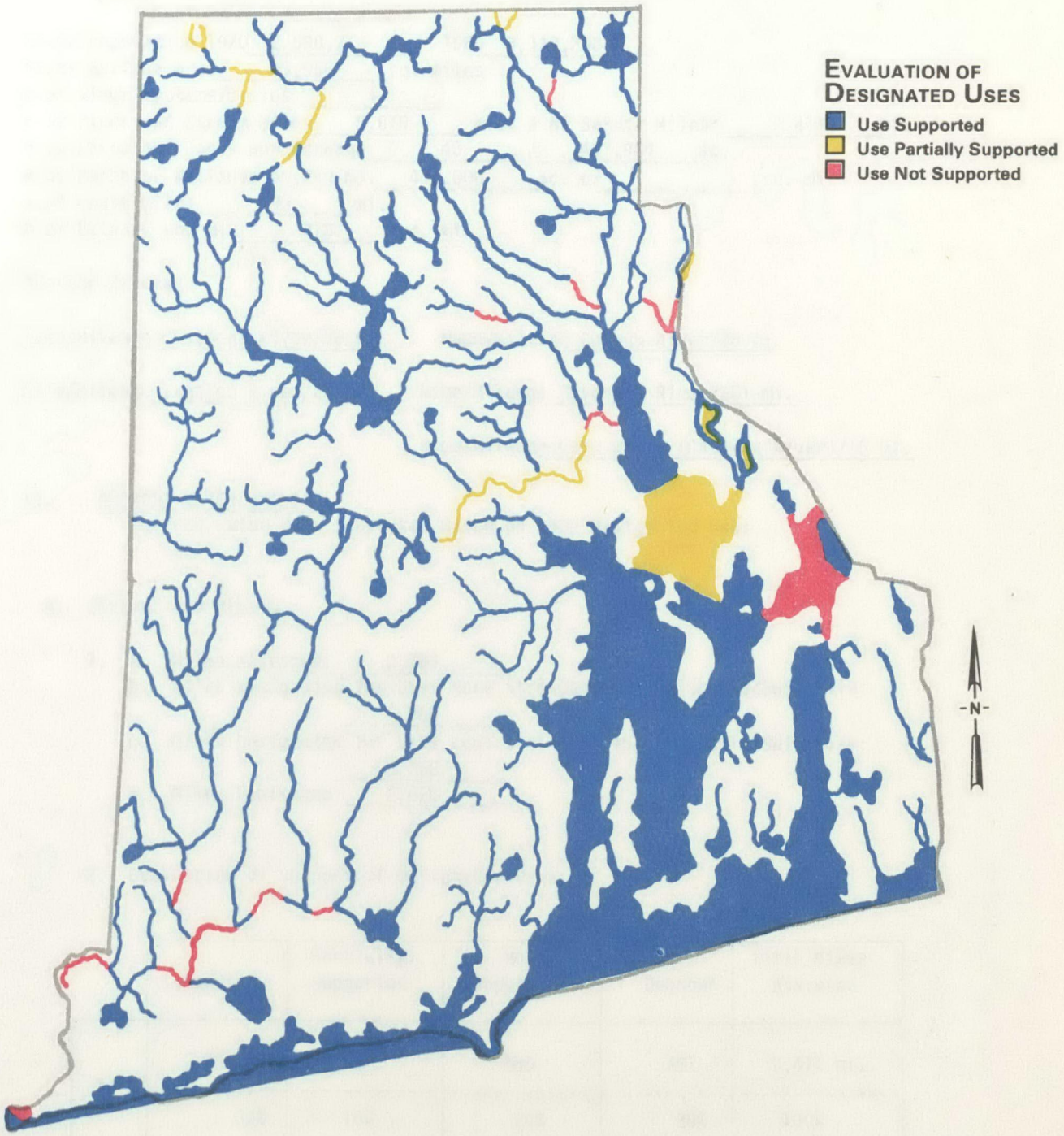
AGENCY PREREPARING REPORT: Rhode Island Department of Environmental Management, Division of Water Resources

CONTACT PERSON & PHONE #: Philip H. Albert (401) 277-2234

DATE: 7 October 1983

RHODE ISLAND
1972

RHODE ISLAND
1982



State of South Carolina*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 2,590,713 1980 3,119,208
State Surface Area 33,055 sq. miles
# of River Systems/Basins 4
# of River and Stream Miles 9,679 mi.; # of Border Miles* 411 mi.
# of Lakes and Ponds and Acreage 40 / 447,984 ac.
# of Marsh or Wetlands ac./sq.mi. 430,000 ac. or _____ sq. mi.
# of Coast Miles 190 mi.
# of Estuary sq. mi. 378 sq. mi.

*Border Rivers:

Name/Mileage Chatooga River/36 mi. Name/Mileage Chauga River/36 mi

Name/Mileage Tugaloo River/23 mi Name/Mileage Savannah River/301 mi.

Name/Mileage Lake Wylie (Catawba River)/15 mi.

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

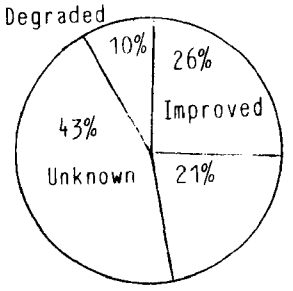
1. a. Miles Assessed: 2,765
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 360
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 3,360
   d. Miles Monitored: 2,620

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	800 mi.	385	585	701	2,471 mi.
	32%	16%	24%	28%	100%
1982	1,417 mi.	646	702	0	2,765 mi.
	51%	24%	25%	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	176	599
Miles Degraded:	26	277
Miles Maintained:	607	
Unknown:	1,247	

B. Lakes and Reservoirs

1. a. Acres Assessed: 447,984

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 3,412

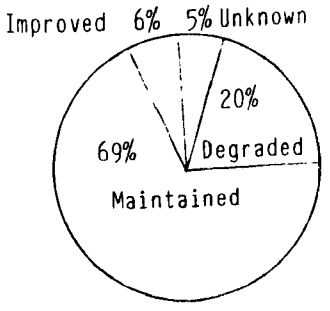
d. Acres Monitored: 441,702

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	372,217 ac.	42,492	8,338	10,494	433,541 ac.
	85.9%	9.8%	1.9%	2.4%	100%
1982	337,949 ac.	79,767	30,268	0	447,984 ac.
	75.4%	17.8%	6.8%	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

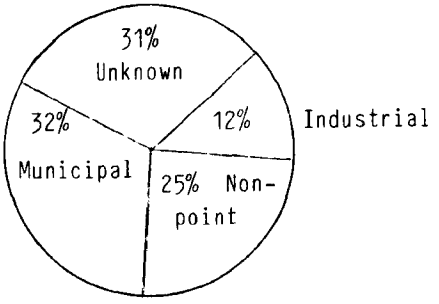


	Within Category	Change in Category
Acres Improved:	2,607	23,322
Acres Degraded:	18,222	72,153
Acres Maintained:	306,925	
Unknown:	24,755	

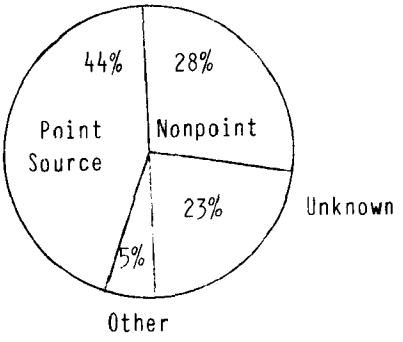
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

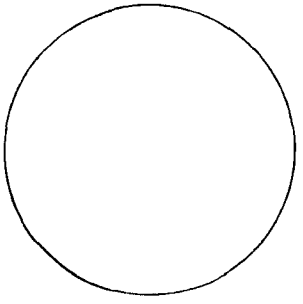
a. Streams and Rivers



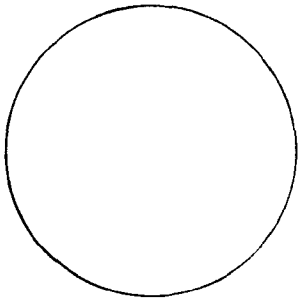
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X	X		X			Coli., DO
Industrial		X		X		X			DO
Non-Point	X		X				X		Nut., Coli.
Other (inc. natural)									

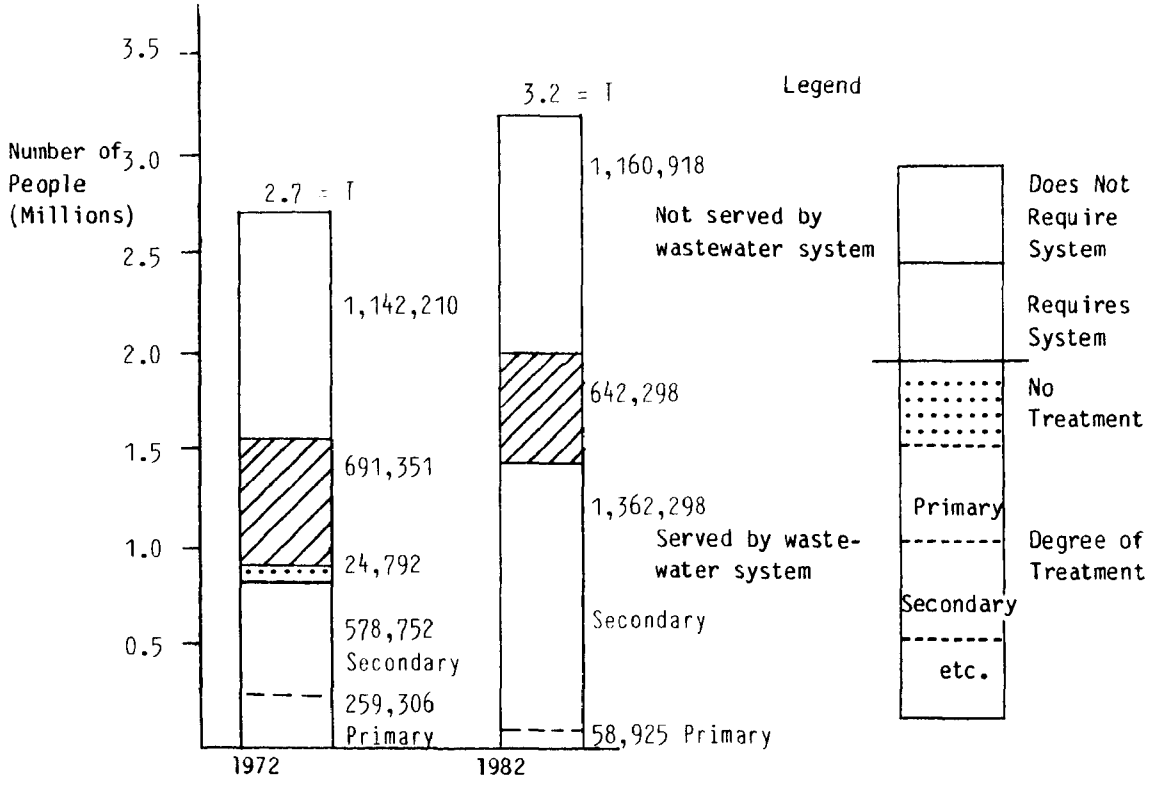
*Number of Stream/River Miles Affected by Toxics: 450
*Number of Lake/Reservoir Acres Affected by Toxics: 2,910
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

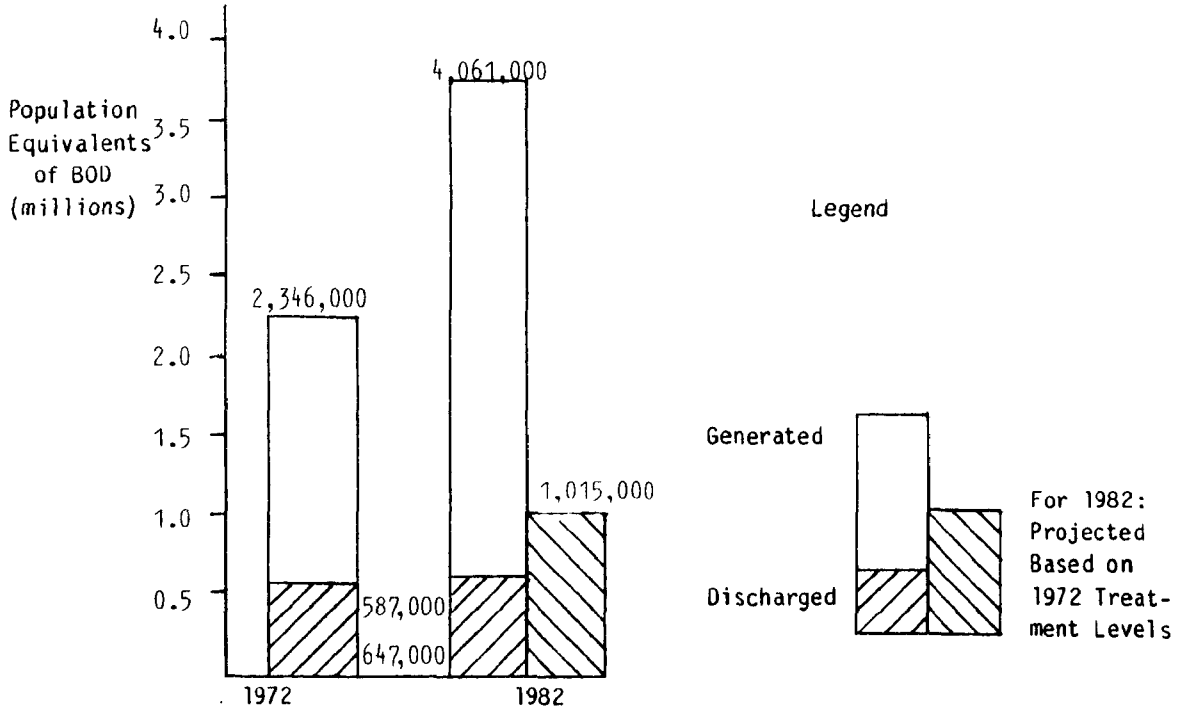
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

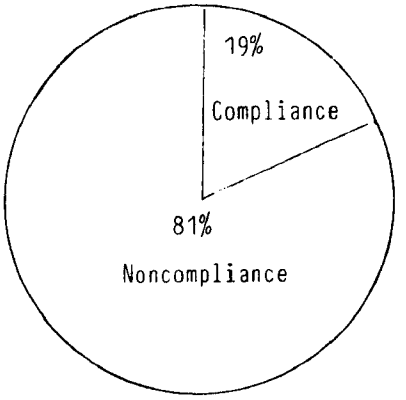
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	67	24	29	
Facilities Meeting 1982 Permit Requirements+	13	24	22	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	19%	100%	76%	
Percentage of Flow For Which Requirements Met+	12%	100%	74%	
Facilities Needing Upgrading	54	24	7	324

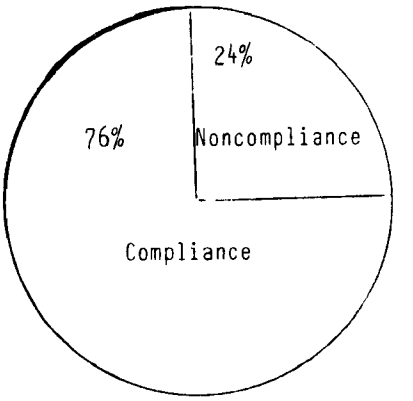
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



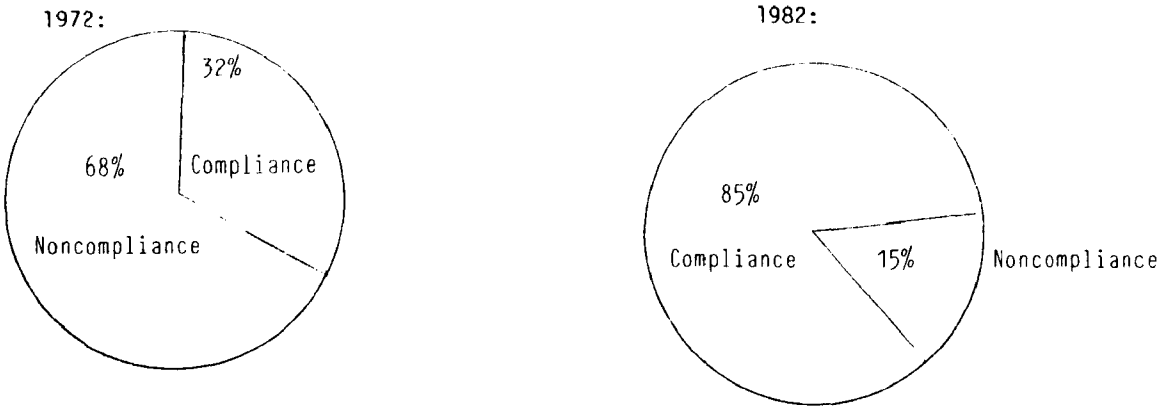
B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	99	3	120	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	32	3	102	
Percentage of Facilities for Which Requirements Being Met	32%	100%	85%	
Percentage of Flow for Which Requirements Met+	61%	100%	97%	1,005

+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

The Statewide 208 Nonpoint Source Management Plan addresses agriculture, construction, mining, silviculture, groundwater contamination, residual waste disposal, hydrologic modifications, and urban runoff. The categories of greatest concern to the State are agriculture, construction, and groundwater contamination.

The State's NPS control strategy incorporates both regulatory and voluntary approaches to compliance. The Plan recommends that existing regulatory programs covering mining, residual waste disposal, and hydrologic modifications are sufficient to control these nonpoint pollution sources. Programs of voluntary compliance are recommended for agricultural and silvicultural activities. Accelerated programs of technical, financial, and educational assistance are recommended to encourage the implementation of best management practices (BMPs) by these industries. The State has been the site of two major agricultural water quality demonstration projects: the Broadway Lake MIP and the Greenville-Spartanburg Special ACP Project. To control construction-related nonpoint source (NPS) pollution, the Plan initially recommended the development of a statewide regulatory program. Existing enabling legislation allowing local governments to adopt sediment and stormwater control ordinances had met with little success. Legislation establishing a mandatory statewide regulatory program has failed to gain legislative support due to political and economic pressures. The State has reassessed its approach to construction NPS and is redeveloping a nonregulatory strategy based upon educational and technical assistance programs.

Groundwater resources are partially protected by existing regulatory programs which cover activities such as land disposal of residual and hazardous wastes, feedlots, stockpiles, surface impoundments, hazardous materials spills, well drilling, and the underground injection of wastes. To ensure adequate protection of groundwater resources, the State is currently developing a comprehensive groundwater protection strategy to be completed by the end of 1983. Urban runoff has proven to be a significant nonpoint source problem in two of the State's most rapidly developing areas: Hilton Head Island and the Grand Strand. In 1978, Myrtle Beach was designated a National Urban Runoff Project Demonstration Area for purposes of studying the impact of stormwater runoff upon surf water quality. The implementation of recommended BMPs in these and other metropolitan areas of the State has lagged primarily due to hesitancy on the part of local governments to adopt the necessary land use controls and development standards.

The implementation of the State's NPS Management Plan is impeded by the lack of adequate funding for the necessary educational, financial, and technical assistance programs.

Summary - Non-Point Source Pollution Control

	Urban[3]	Ag/Irr.[1]	Silv.[1]	Mining[2]	Cons.[1]	Hydro.[2]	Salt. Int.[1]	Residuals[2]
Severity & Extent	I/L	M/W	I/L	I/L	M/L	I/L	I/L	I/L
Primary Pollutants	C,M,OxDe *O	C,Nut.,P SS,T	SS,T	pH,SS	SS,T	SS,T	Sal	M,OxDe, **O

*Oil & Grease
**Toxic Materials
1=Voluntary Control Program 2=Regulatory Control Program 3=Combined Vol. & reg. program

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: It is the State's strategy to forestall major problems and bring about permit compliance through improved plant operation and maintenance (O&M). Emphasis is therefore placed on enforcement actions directed at O&M deficiences. These deficiences are detected through NPDES self-monitoring data, O&M technical evaluations, and facility surveys. To facilitate proper O&M, the State provides technical assistance to plant operators. More formal training for plant operators will soon be available through the Sumter Tech Water Quality Management Institute. Enforcement tools used to obtain compliance include noncompliance notification, conferences, administrative orders, consent orders, and civil fines. Enforcement actions against nonpoint source dischargers are generally limited to those activities for which regulatory programs exist: mining, hydrologic modifications, and residual waste disposal. Compliance is sought through technical assistance, noncompliance notification, and civil fines.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

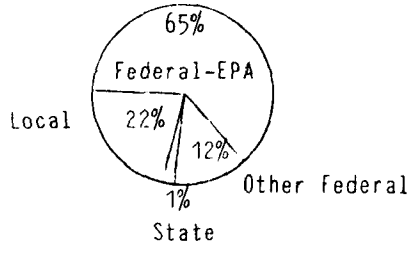
Total Number of Facilities:	29
Number of Pre-Administrative Actions:	16
Number of Administrative Actions:	10
Number of Judicial Actions:	3

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 612.2 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 394.8 Million
Other Federal:	$ 78.0
State:	$ 7.8
Local Match:	$ 131.6
Other Local:	$ Not Available

C. Program Activities

In 1972, the State's water pollution control program was centered in the S.C. Pollution Control Authority. This agency's activities were limited and its budget amounted to only 14% of that of the State's water pollution control program in FY82. In 1973, the State's environmental and health-related programs were merged to form the present-day S.C. Department of Health and Environmental Control. During the period between FY73-82, programs such as water quality monitoring, permitting, enforcement, and construction grants increased significantly. Additionally, the development of water quality management plans for the State and its five designated areawides was essentially completed. By 1982, the State's water pollution control program had evolved into a $4.9 million effort. Following is a brief description of major elements of the State's program:

MUNICIPAL CONSTRUCTION GRANTS - The objective of this program is to eliminate water quality problems attributable to municipal discharges by providing municipalities with technical, financial, and administrative assistance necessary to build or upgrade their wastewater treatment plants. The State has been substantially delegated responsibility for administering the Municipal Construction Grants Program by the EPA. Although municipal treatment needs of approximately $500 million are still required to fulfill program objectives. Municipal facilities still represent the greatest threat to the State's water quality.

MONITORING - The objective of this program is to provide the data base necessary to drive inhouse decision making processes and other information needs. The program encompasses water quality and biological trend monitoring stations, intensive stream surveys, facility inspections and surveys, lake studies, and a laboratory quality assurance program. Over the past ten years the number of monitoring stations has been significantly reduced while parameter coverage at remaining stations has been increased. There has been an increased emphasis on biological parameters in both the trend and facility monitoring efforts. The use of STORET and BIOSTORET for water quality and biological data management has been implemented. During the FY80-82 period, part of the water quality trend monitoring network was inactivated to divert resources for a statewide evaluation of point and nonpoint source problem areas. Laboratory facilities to support the monitoring effort have increased significantly over the past decade.

ENFORCEMENT AND PERMITTING - The National Pollutant Discharge Elimination System (NPDES) program provides the basis for controlling the State's municipal and industrial point source discharges. NPDES permits are based upon advanced wasteload allocation procedures and state and federal effluent guidelines. EPA has delegated responsibility to the State for administering the NPDES program which presently has in force 1329 permits. Other permitting activities of the State include water quality certifications for dredge and fill operations, construction permits for new or upgraded wastewater treatment facilities, and operational permits for nondischarging agricultural and land application systems. The State recently implemented a pretreatment program designated to protect municipal facilities from incompatible wastes contributed by industrial and other sources.

During the first half of the decade, little effort was expended on enforcement activities. Resources were devoted toward issuing permits, placing municipals in the construction grants program, getting industrials to upgrade to meet BPT, and placing private domestics on compliance schedules. Since 1977, enforcement and compliance activities have increased. There have been a greater number of penalties and orders issued to correct deficiences. The number of facility surveys and operation and maintenance (O&M) inspections have increased significantly. The State's enforcement strategy is to stress proper operation and preventive maintenance to forestall the development of major problems. Toward this end, the State now fields a special technical assistance team to instruct plant operators in proper operation and maintenance and formal operator training will soon be avilable at the Sumter Tech Water Quality Management Institute.

VI. SITE-SPECIFIC SUCCESSES

I. HORSE CREEK, AIKEN COUNTY

Prior to 1980, municipalities and textile industries discharged their wastewaters to Horse Creek and its tributaries with little or no treatment. The result was severe water quality degradation and contamination of bottom sediments with heavy metals and organic compounds. Biological communities within the stream were totally wiped out. Horse Creek was identified by the S.C. Department of Health and Environmental Control as the worst point source problem in the State.

With the advent of PL 92-500, it became feasible to improve the situation. Construction of the 20 MGD Horse Creek Wastewater Treatment Plant was begun in 1977 and completed in November, 1979. Today, 20 industrial and municipal facilities have tied into its collection system. Follow-up sampling indicates that water quality has significantly improved and biological communities are rapidly recovering. There have also been detected water quality improvements in the Savannah River below its confluence with Horse Creek. For the first time in many years, fish are being caught within the Horse Creek drainage area.

II. PCB PROBLEM IN LAKE HARTWELL, PICKENS COUNTY

In August, 1976, significant concentrations of polychlorinated biphenyls (PCB) were detected in Twelve Mile Creek which is a tributary to Lake Hartwell. Lake Hartwell is a major recreational facility. The S.C. Department of Health and Environmental Control and the Environmental Protection Agency jointly issued an advisory against eating fish caught in the Lake and Twelve Mile Creek. This advisory was later revised to cover only the Seneca River arm of the Lake. The source of the PCBs was determined to be Sangamo Electric, an electrical capacitor manufacturer which discharged wastewater into Town Creek, a tributary of Twelve Mile Creek. PCB is a type of organic compound frequently used by the electrical industry because of its heat resistant properties. PCBs are dangerous because of their persistence in the environment and tendency for bioaccumulation. Sangamo Electric immediately took steps to eliminate its PCB discharge and in June 1977, ceased using PCBs in its manufacturing process.

In response to this crisis, the State established a special monitoring program on Lake Hartwell. Since the beginning of this monitoring effort, PCB levels in fish tissue sampled have steadily declined. Due to the rapid recovery of the lake system, it is now thought that fish tissue concentrations of PCB will fall below the critical level sooner than previously anticipated.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

In 1972, the State's greatest water quality problems were attributed to point source discharges. Public Law 92-500 provided the State with legal and financial means with which to begin making significant headway against this problem. From 1972-1982, the State awarded over $500 million in municipal construction grants. However, the 1982 Needs Survey lists $871 million in municipal facility requirements still to go. POTWs still present a significant water quality problem and the inability of municipalities to provide for their own treatment needs is just as great in 1982 as it was in 1972. The matter of future funding to meet this critical need is a serious concern to the State.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

1. Proper operation and maintenance of POTWs and private domestic treatment facilities. This is a significant problem within the State. It is primarily due to insufficient operator training and outdated treatment facilities. This problem is presently being resolved by the municipal construction grant program, technical assistance, and operator training programs.

2. The lack of field-verified models for individual discharges. The State doesn't possess the resources to develop the field data necessary for site-specific models. One alternative to increase model confidence level would be to require dischargers to develop their own models and submit it to the State for approval.

3. Nonpoint Source Pollution. Agricultural and construction activities represent a significant threat to State waters. There are few regulatory controls over these activities. Voluntary implementation of Best Management Practices (BMPs) by these industries is dependent upon successful educational, technical, and financial assistance programs. The State lacks funding for such programs. Limited federal assistance is available only for certain agriculturally-related activities.

4. The identification and control of toxic materials in point source discharges. Progress has been made in characterizing and controlling the toxicity of discharges. The State is presently sampling major municipals for heavy metals content. The pretreatment program will reduce or eliminate the toxicity of industrial wasteflows to POTWs. Much additional work remains to be done.

5. Marinas. Marina development along coastal South Carolina has raised concerns regarding water quality, recreational, and shellfish impacts. These impacts are presently being assessed by the State.

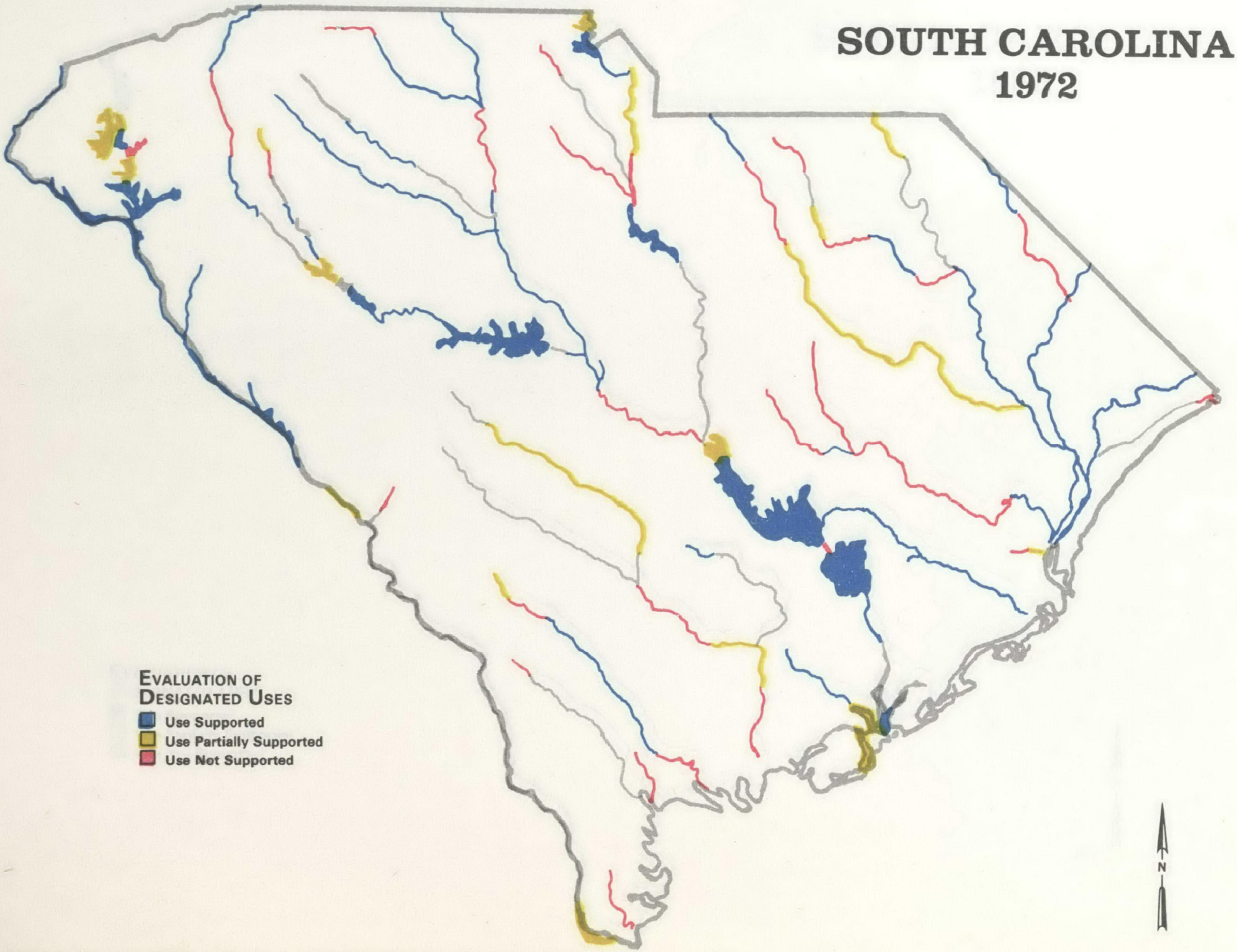
AGENCY PREPARING REPORT: S.C. Department of Health & Env. Control

2600 Bull Street, Columbia, S.C. 29201

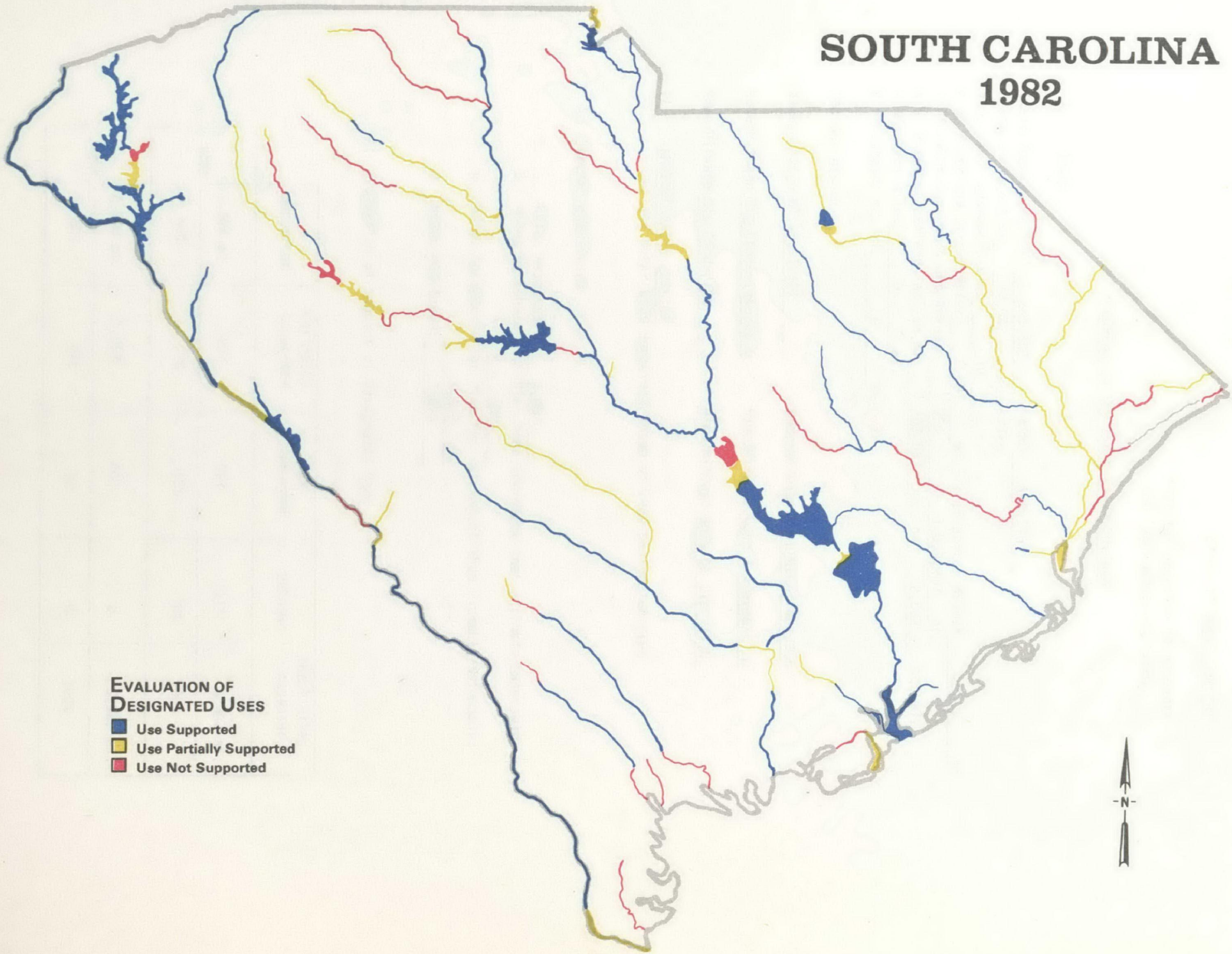
CONTACT PERSON & PHONE #: R. Lewis Shaw, Chief, Bureau of Water Pollution Control

DATE: (803) 758-5631

SOUTH CAROLINA
1972



SOUTH CAROLINA
1982



State of South Dakota*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 665,507 1980 690,178
State Surface Area 77,047 sq. miles
# of River Systems/Basins 10
# of River and Stream Miles 9,937 mi.; # of Border Miles* 283.5 mi.
# of Lakes and Ponds and Acreage 790 / 1,003,987 ac.
# of Marsh or Wetlands ac./sq.mi. 1,332,562 ac. or 2,082 sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage Missouri/121 Name/Mileage Lake Hendricks/3.5

Name/Mileage Big Stone Lake/26.0 Name/Mileage Lake Traverse/21.0

Name/Mileage Big Sioux/105 Name/Mileage Bois De Sioux/7.0

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

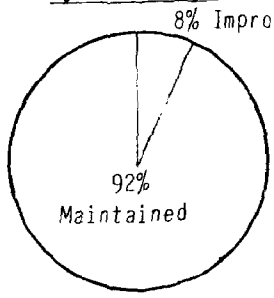
1. a. Miles Assessed: 3,987
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 726
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 6,327
   d. Miles Monitored: 3,610

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	1,874 mi.	897	519	697	3,987 mi.
	47%	22%	13%	18%	100%
1982	2,500 mi.	1,087	400	0	3,987 mi.
	63%	27%	10%	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	302	0
Miles Degraded:	0	0
Miles Maintained:	3,685	
Unknown:	0	

B. Lakes and Reservoirs

1. a. Acres Assessed: 655,697

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 555,826

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 448,161

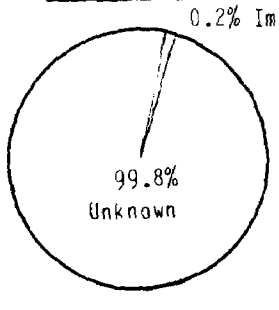
d. Acres Monitored: 37,938

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972		Insufficient	Data		
					100%
1982	549,000 ac.	106,697			655,697 ac.
	84%	16%			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

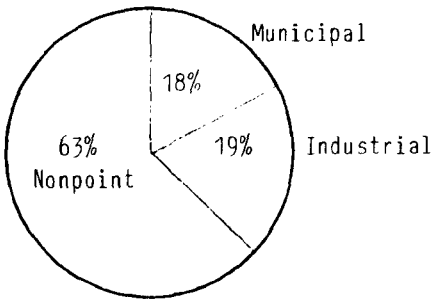


	Within Category	Change in Category
Acres Improved:	1,350	
Acres Degraded:		
Acres Maintained:		
Unknown:	654,347	

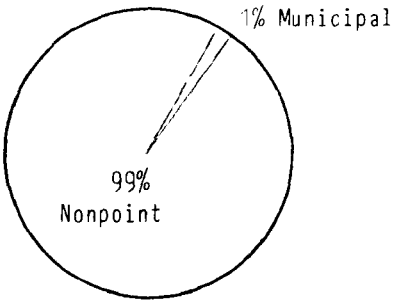
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

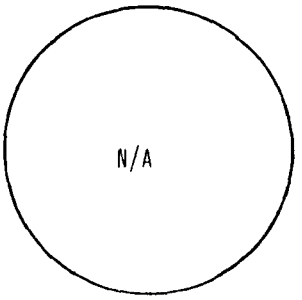
a. Streams and Rivers



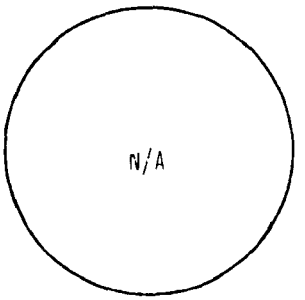
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal		X	X						NH-3, D.O.
Industrial						X			
Non-Point	X	X	X					Sed.	Sed., Nut.
Other (inc. natural)									

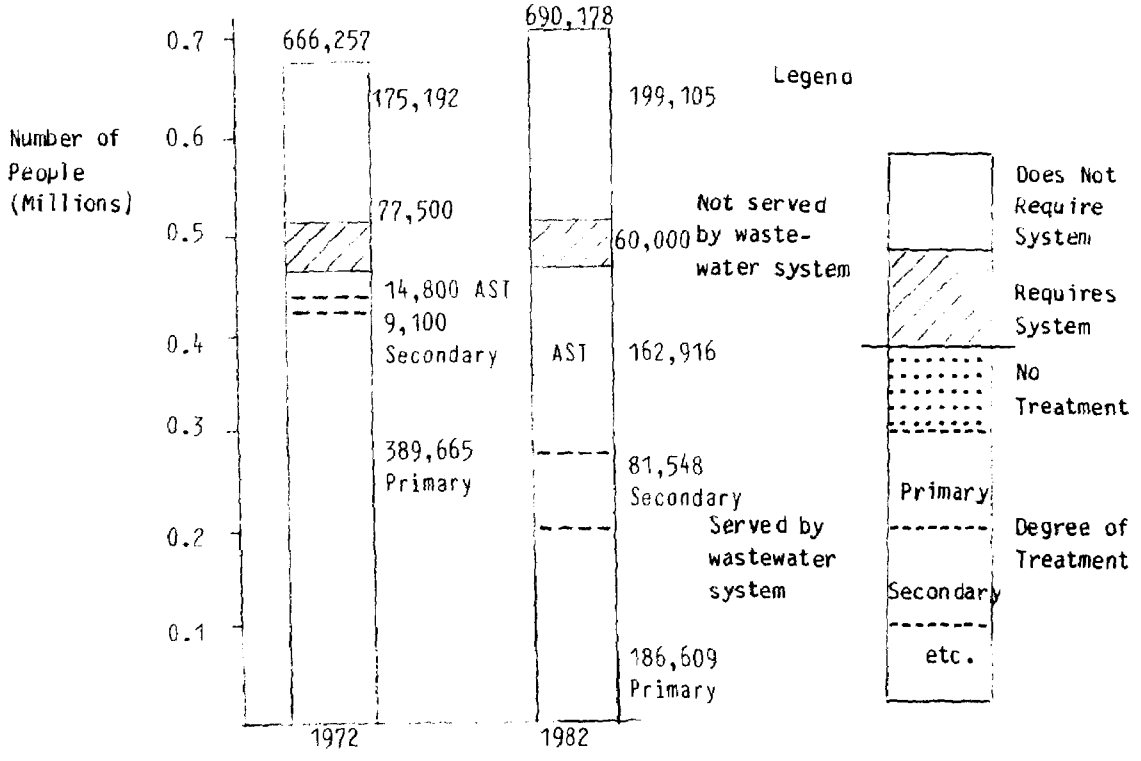
*Number of Stream/River Miles Affected by Toxics: 150
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

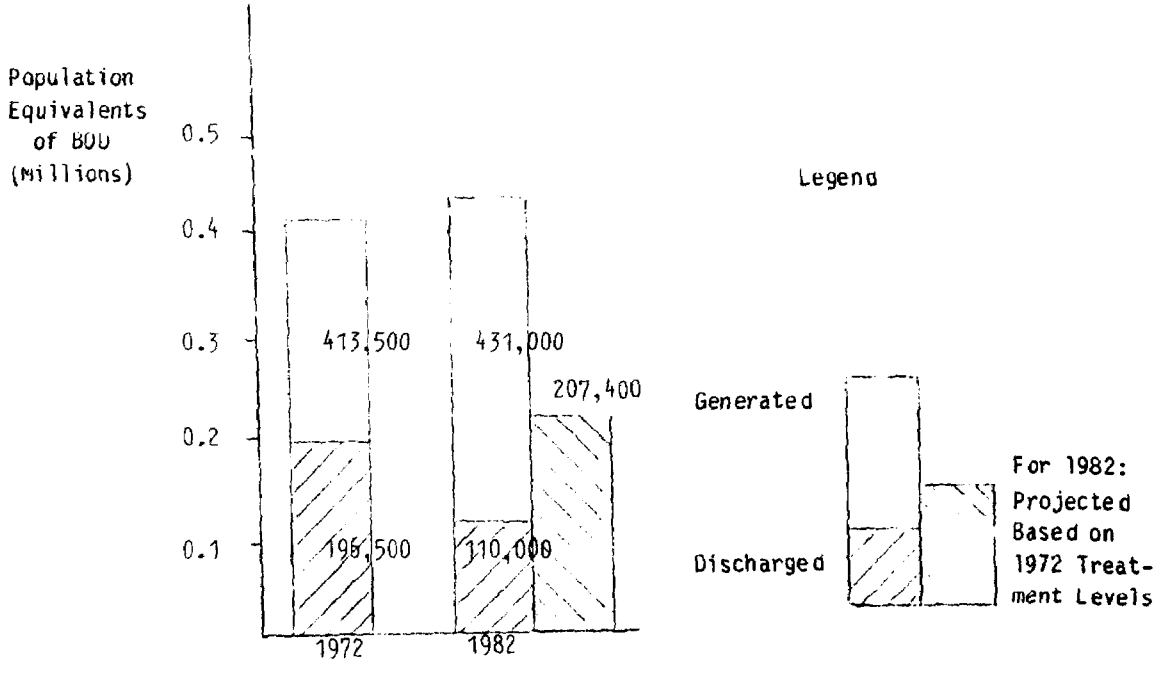
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

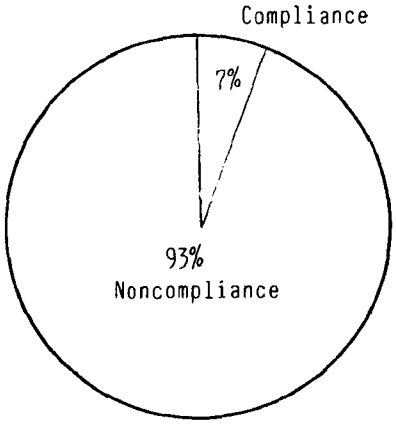
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	30	12	18
Facilities Meeting 1982 Permit Requirements+	2	12	16
Percentage of Facilities for Which Requirements Being Met	7%	100%	89%
Percentage of Flow For Which Requirements Met+	10	N/A	80
Facilities Needing Upgrading	28	12	1

Total Permits in Effect in 1982 284

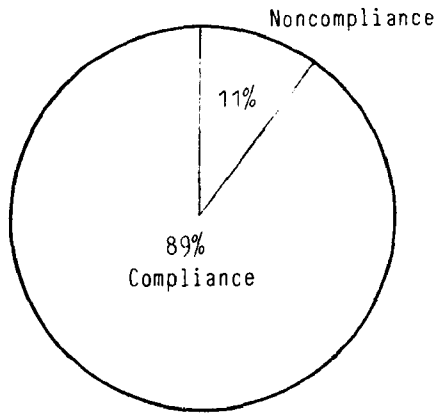
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	8	0	16
Facilities Meeting 1982 Permit Requirements+	0	0	6
Percentage of Facilities for Which Requirements Being Met	0	0	37%
Percentage of Flow for Which Requirements Met+	0	0	65

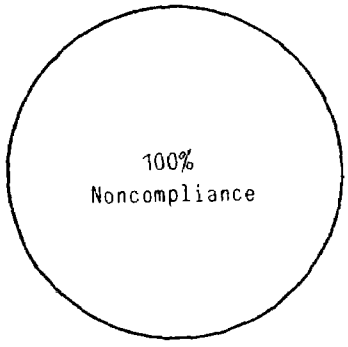
Total Permits in Effect in 1982 83*

+Includes "No-Discharge" Facilities

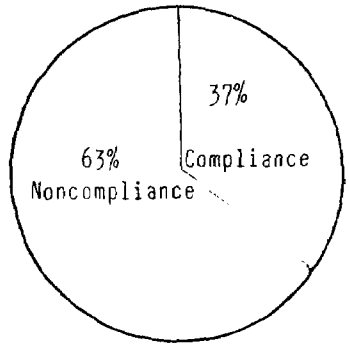
*Does not include ±90 feedlots that are covered separately by a general permit.

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

South Dakota's Non-Point Source (NPS) pollution control program has historically focused on a specific watershed approach. Critical areas are identified, monitoring is initiated, assessment of problem areas is made, recommendations for improvement are formulated and implementation is initiated. Currently, activities are underway in 17 watersheds ranging from initial monitoring to completion of implementation. Evaluation of use impairments is not accurately identified in Section II of this report for the following reasons: 1. Nonpoint sources are by far our largest contributor to degradation of streams and lakes within the State. 2. Current water quality standards are geared primarily to point source discharges. 3. Most ambient monitoring is conducted during periods of runoff; therefore, NPS is not adequately addressed. 4. The system of Missouri River Impoundments seldom reflect exceedance of standards and thus tend to overshadow the other surface water bodies of the State; however, the majority of S.D. lakes are eutrophic to hypereutrophic due primarily to cultural or natural NPS contributions. 5. Only approximately 3 lakes (besides Missouri River Impoundments) receive direct input from municipal or industrial dischargers. 6. Significant water quality improvements may take years after long term NPS degradation. Consequently only the Missouri River Impoundments were included as fully supporting the designated uses for lakes and reservoirs.

The Lake Herman Model Implementation Program resulted in 89% of the watershed receiving adequate treatment for soil loss. Current data is beginning to demonstrate reductions in sediment delivery and nutrient loading to Lake Herman. As this is the only comprehensive monitoring program to date capable of demonstrating water quality improvements, only Lake Herman acreage was included as "improved" (II.B.3.). The Comprehensive Monitoring and Evaluation portion of the Oakwoods/Lake Poinsett RCWP is intended to demonstrate long term changes in surface and groundwater quality as a result of BMP application.

Summary - Non-Point Source Pollution Control

	Urban[1]	Ag/Irr.[1]	Silv.[1]	Mining[2]	Cons.[3]	Hydro.	Salt. Int.	Residuals[3]
Severity & Extent	M/L	S/W	M/L	S/L	S/L	M/L	I/L	M/L
Primary Pollutants	M,S	Nat.,SS C, T, P	Nat,SS OxDe,SS	T,SS M	T,SS	SS,T OxDe	pH, Sal.	M, OxDe p, pH

[1]Voluntary Control Program [2]Regulatory Control Program
[3]Combined voluntary and regulatory program

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: South Dakota has not assumed the delegation of the NPDES permit program, consequently, enforcement of permit violations remains vested with EPA. The State conducts various monitoring visits each year that verify compliance status for most permittees in the State. In addition to these monitoring inspections, the State reviews self monitoring data and receiving stream water quality monitoring results to identify sources of NPDES noncompliance. Any permit violation problems encountered are referred to EPA for further investigation for enforcement or the State initiates enforcement actions for violations of State water quality standards. Actions referred to EPA are jointly pursued by the State and EPA. Coordination between the two agencies is necessary in order to prevent duplication and to assure orderly and continued progress on enforcement actions.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

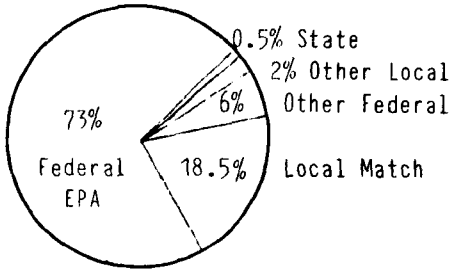
Total Number of Facilities:	12
Number of Pre-Administrative Actions:	5
Number of Administrative Actions:	4
Number of Judicial Actions:	1

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 148.9 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 109.0 Million
Other Federal:	$ 8.8
State:	$ 0.6
Local Match:	$ 27.5
Other Local:	$ 3.0

C. Program Activities

South Dakota's Clean water program consists of the following activities: Wastewater operator training and certification, technical assistance for wastewater operators, ambient stream sampling, special stream surveys that study the impact of municipal and industrial wastes on receiving streams, technical assistance to agricultural feedlot operators, inspections of municipal, industrial, and agricultural facilities to determine NPDES permit compliance, identifying permittees that require enforcement actions, follow-up actions necessary to carry-out enforcement, technical assistance and inspection of individual and small cluster wastewater systems, quality assurance and technical assistance for municipal wastewater laboratories, preparation of river basin water quality management reports that result from the various EPA and State environmental programs, administration of 7 lake restoration/assessment grants, providing technical assistance to Tribal water quality improvement programs, establishment of in-stream minimum flows, provide technical assistance to Rural Clean Water Program activities, review mining permits and sites to determine potential or actual impacts on water quality; assist in the State's hazardous spills prevention containment and clean-up activities, provide the administration of the EPA Construction Grants Program, and the review, analysis and updating of the State's water quality standards.

The above activities are currently being conducted which represents a substantial change in emphasis and level of effort by the State since 1972. Clean water program efforts in the early 1970's were limited to establishment of State water quality standards, prioritization of communities to receive limited federal financial assistance for upgraded wastewater facilities, and limited Statewide and site specific water quality and effluent monitoring.

The infusion of Federal funding for the 104, 106, 205, 208, 303, and 402 Sections of the Federal Water Pollution Control Act resulted in greater emphasis in the State toward indentifying water quality related problems. The December 1981 Amendments further increased the State's efforts toward documenting water quality problems and away from providing grant assistance to communities that cannot meet minimum Federal standards. Intensive stream surveys of major dischargers are now required prior award of EPA grant assistance and after the new wastewater facilities are completed in order to document the results of the project.

VI. SITE-SPECIFIC SUCCESSES

Lead-Deadwood

The cities of Lead and Deadwood discharged raw wastes into Whitewood Creek for over 100 years prior to construction of new wastewater facilities in 1979. The State investigated and documented water pollution problems resulting from these wastes and initiated enforcement action against Lead-Deadwood which resulted in the construction of a new $4.0 million wastewater treatment system. The effect of the elimination of these wastes and the recent construction of water pollution control facilities at Homestake Mining Company has allowed Whitewood Creek to begin the first stages of returning to its natural state of being a clear, cold water mountain stream. Figure 4 provides a graphical representation of the decrease in Fecal Coliform organisms, an indicator of the presence of human wastes, in Whitewood Creek since July, 1979.

Mitchell

Another example of recent improvements in water quality is the James River below Mitchell. Prior to 1979, the City discharged inadequately treated wastes to the James River which resulted in frequent fish kills and the inability to use the River for recreational and stock watering purposes. Through the efforts of the State, EPA, and the City, a new innovative wastewater treatment system that utilizes the treated water to irrigate over 1,200 acres of cropland was constructed. The crop production on the 1,200 acres was increased by 270 percent and fertilizer costs were reduced by over 40 percent. As the result of the elimination of these wastes the James River now supports an active sport fishery below Mitchell and recreational and stockwatering uses have returned. Figures 7 and 8 represent graphs that indicate improvements in water quality in the James River below Mitchell. Note the significant increase in dissolved oxygen and decrease in ammonia nitrogen which is directly related to the elimination of the Mitchell wastewater.

FIG 4. WHITEWOOD CREEK FECAL COLIFIORMS

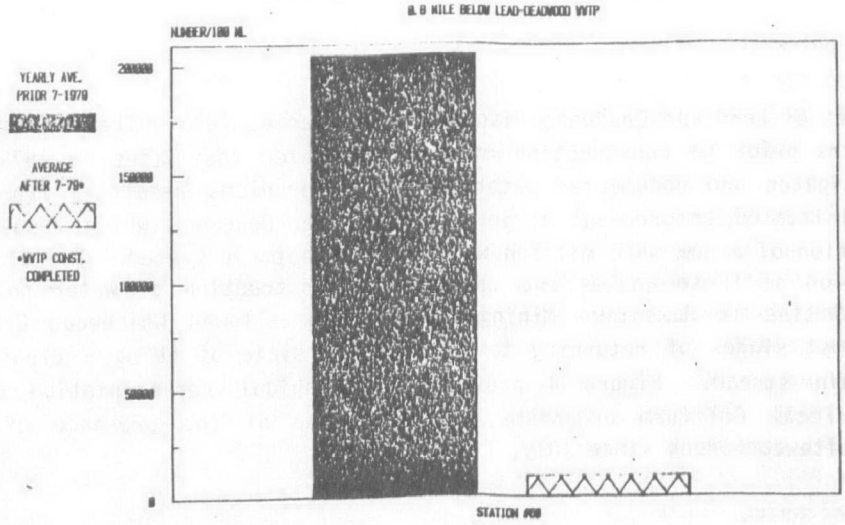


FIG 7. JAMES RIVER FECAL COLIFORMS

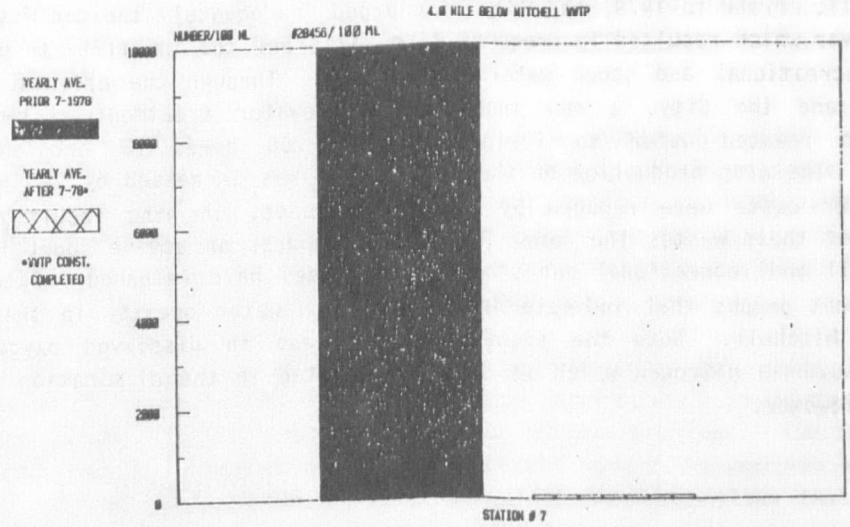
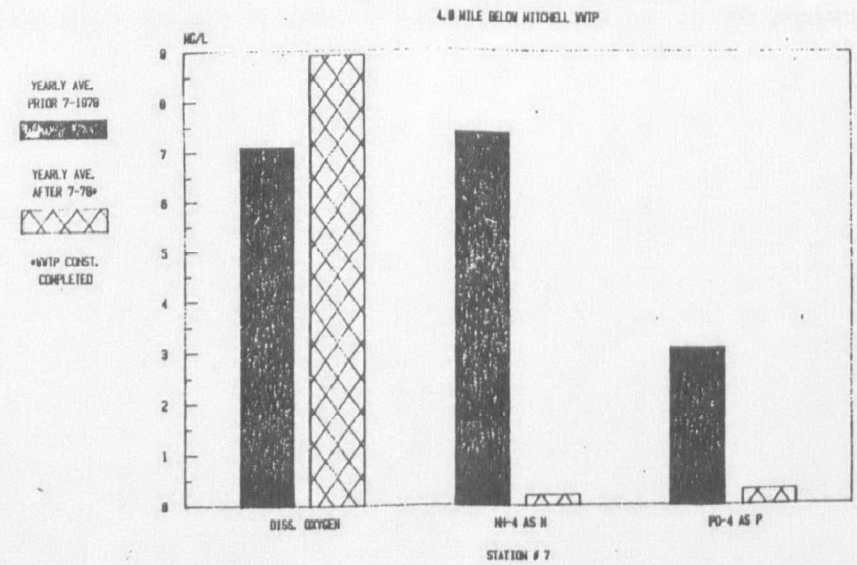


FIG 8. JAMES RIVER PARAMETERS



VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The implementation of the EPA Construction Grants Program has resulted in the completion of 51 wastewater treatment facilities and the renovation of over 200 miles of receiving streams. Another 340 stream miles are still in need of renovation, therefore, it is imperative that funding for the Construction Grants Program continue. Nonpoint sources of pollution are in need of implementation funds in order to alleviate man-caused NPS problems. Existing U.S.D.A. programs should be supplemented with implementation funding within EPA's nonpoint pollution control programs.

Part B. Major Remaining Problems:

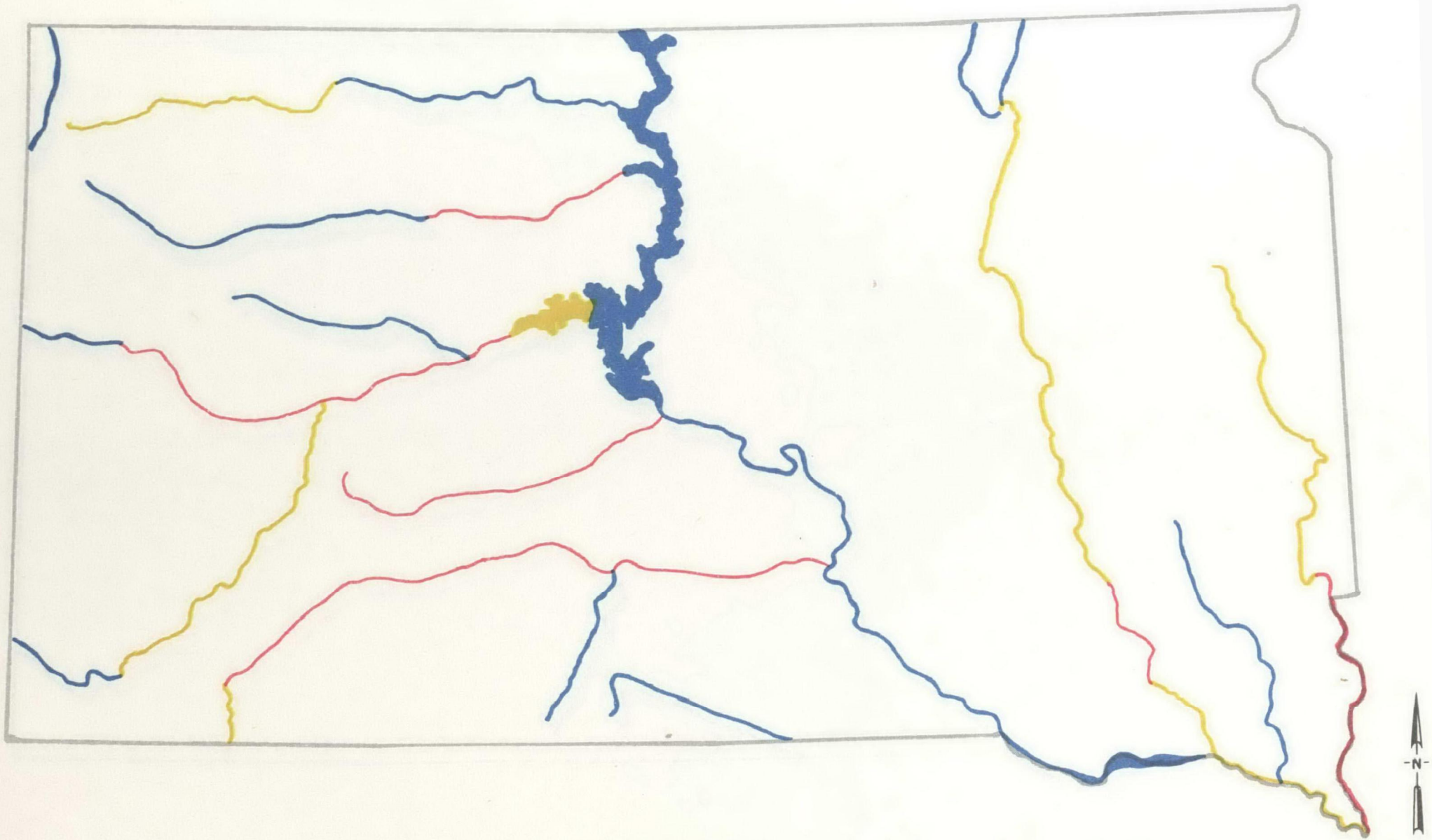
- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

- Information on Toxics, either resulting from agriculture or mining.
- Background data on groundwater for adequate assessments and establishment of uniform policies.
- Lake rehabilitation projects remain a very high priority in South Dakota.

AGENCY PREPARING REPORT: South Dakota Dept. of Water and Natural Resources

CONTACT PERSON & PHONE #: James D. Nelson (605) 773-3351

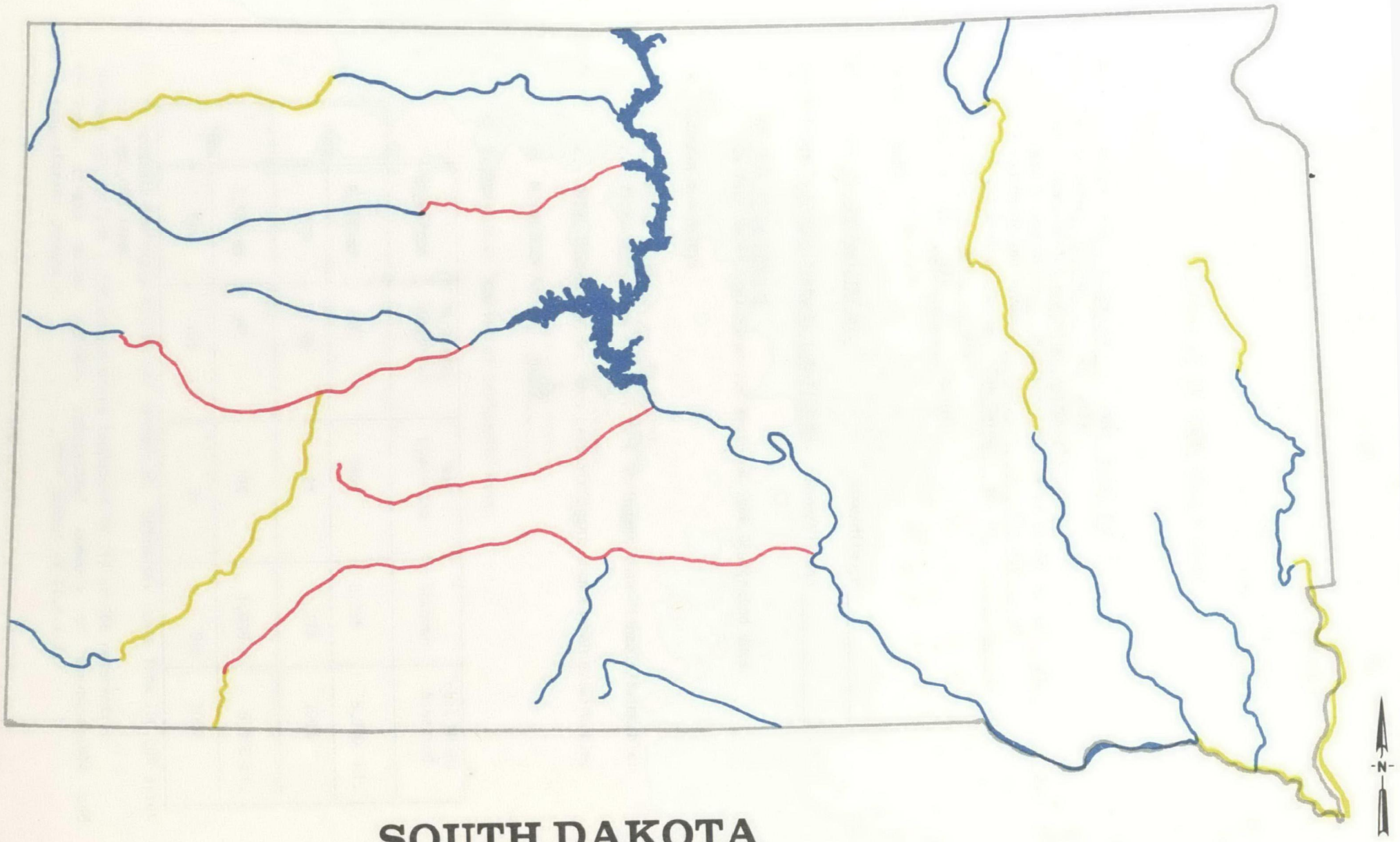
DATE: August 26, 1983



SOUTH DAKOTA
1972

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported



SOUTH DAKOTA
1982

State of TENNESSEE*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3,923,687 1980 4,591,120
State Surface Area 42,244 sq. miles
# of River Systems/Basins N/A River Systems/13 Basins
# of River and Stream Miles 19,236*** mi.; # of Border Miles* 210 mi.
# of Lakes and Ponds and Acreage 115 / 675,550 ac.
# of Marsh or Wetlands ac./sq.mi. *See Below ac. or _____ sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Mississippi/197 mi. Name/Mileage _____

Name/Mileage Tennessee(Kentucky Lake)/13 mi. Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 19,236***
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 3,201**
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 9,220

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2,500 mi.	505	140	2,755	5,900 mi.
	42%	9%	2%	47%	100%
1982	2,945 mi.	945	175	1,835	5,900 mi.
	50%	16%	3%	31%	100%

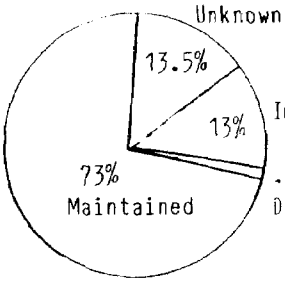
* No accurate inventory exists for Tennessee. Estimates range from 700,000 acres to 1,400,000 acres.

** Does not include 1,222 stream miles impounded in TVA or COE reservoirs.

*** Total stream miles includes substantial numbers of non-navigable and intermittent streams. **** Subset of II.A.1.d.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	885	409
Miles Degraded:	35	72
Miles Maintained:	4,980	
Unknown:	920	

B. Lakes and Reservoirs

1. a. Acres Assessed: 675,550

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 592,836

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

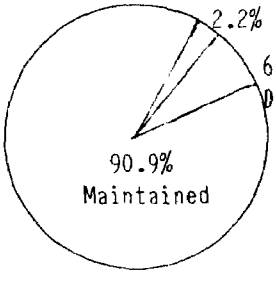
d. Acres Monitored: 670,626

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	410,589 ac.	137,734	106,963	0	655,286 ac.
	62.7	21.0	16.3		100%
1982	420,489 ac.	133,337	121,724	0	675,550 ac.
	62.3	19.7	18.0		100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

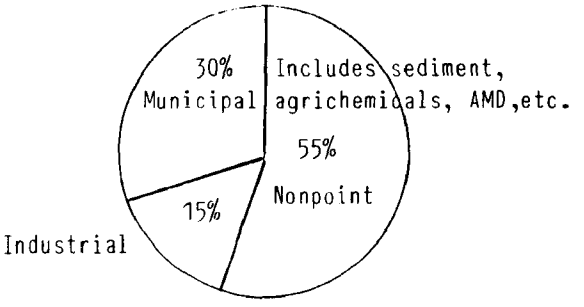


	Within Category	Change in Category
Acres Improved:	14,594	0
Acres Degraded:	32,030	14,761
Acres Maintained:	614,165	
Unknown:	0	

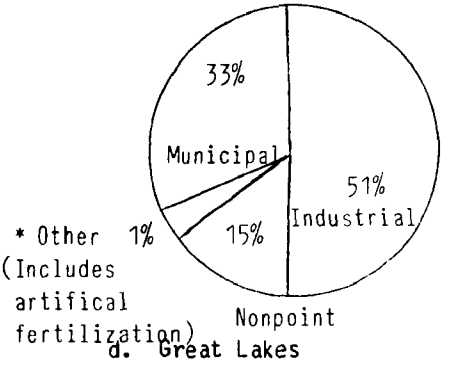
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

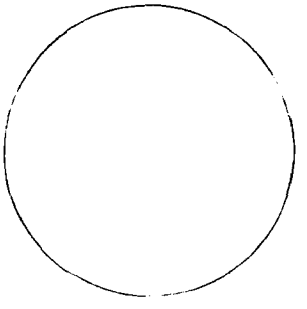
a. Streams and Rivers



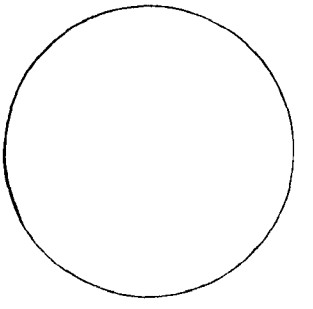
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X						Metals	D.O., Coli
Industrial		X		X	X	X		Metals	Tox, Met.
Non-Point	X	X	X	X		X		Sed.	Sed., Tox
Other (inc. natural)									Nut.

Number of Stream/River Miles Affected by Toxics: 1,031
*Number of Lake/Reservoir Acres Affected by Toxics: 58,191
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

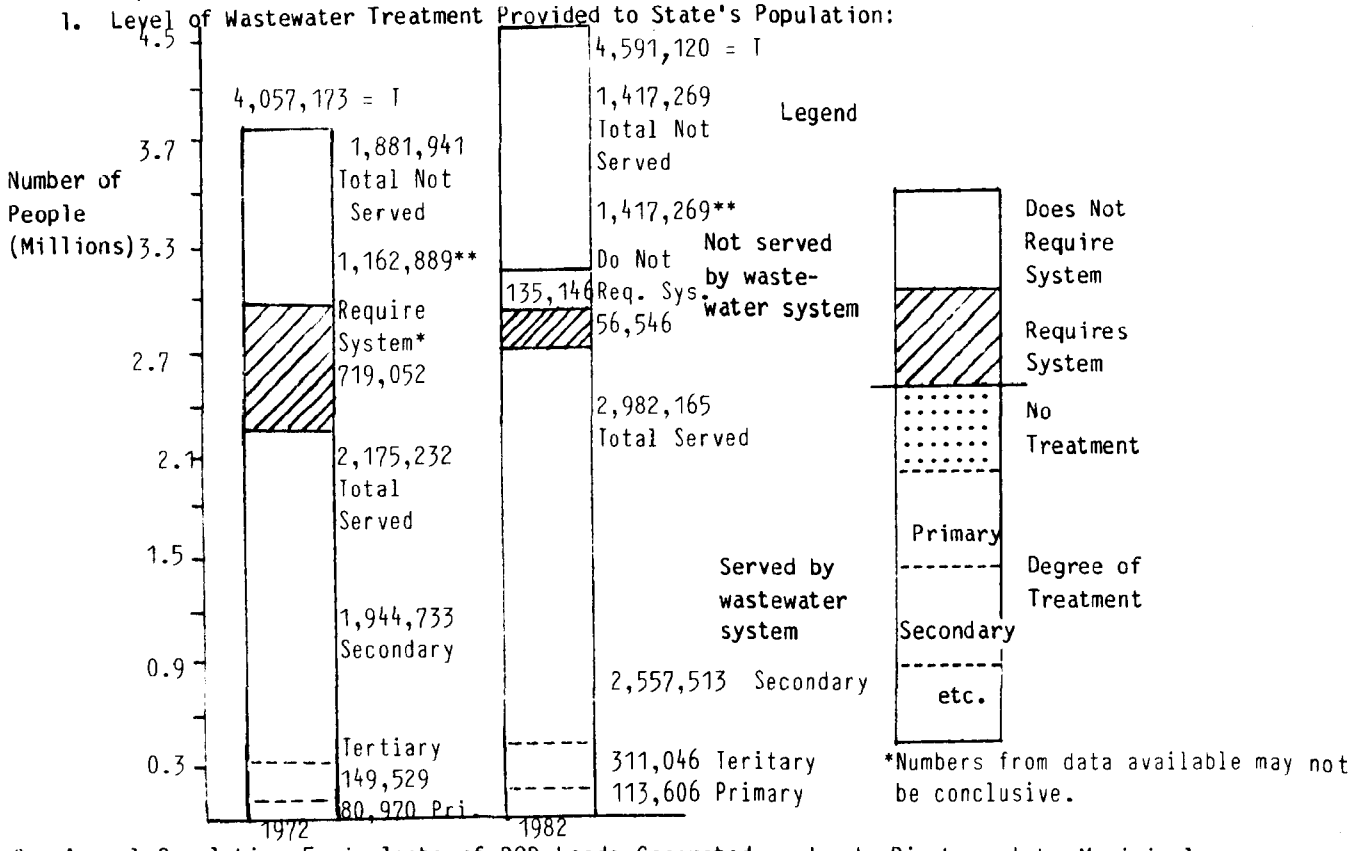
F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

*Includes 808 miles affected by surface mine drainage

III. POINT SOURCES

A. Municipal

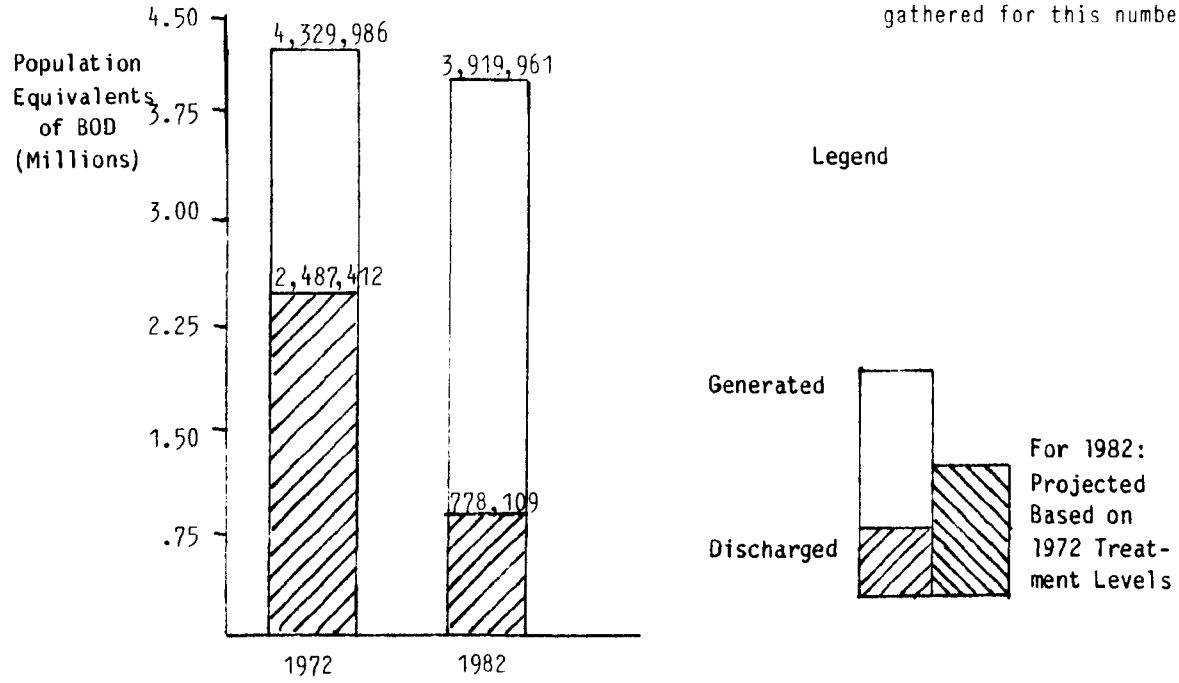
1. Level of Wastewater Treatment Provided to State's Population:



*Numbers from data available may not be conclusive.

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*

**Indeterminate numbers from data needed for treatment cannot be gathered for this number.



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

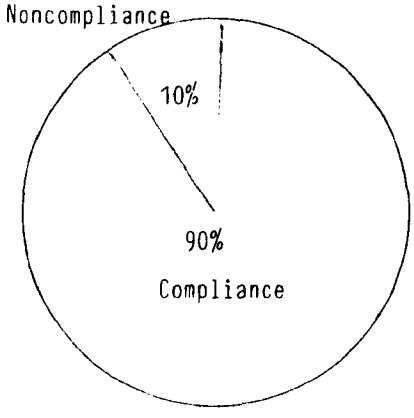
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	72	24	62
Facilities Meeting 1982 Permit Requirements+	65	13	55
Percentage of Facilities for Which Requirements Being Met	90%	54%	88%
Percentage of Flow For Which Requirements Met+	N/A	95.7%	73.7%
Facilities Needing Upgrading	N/A	11	7

Total Permits in Effect in 1982
86 (major)
225 total

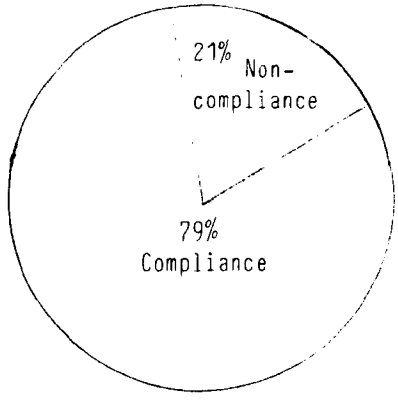
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

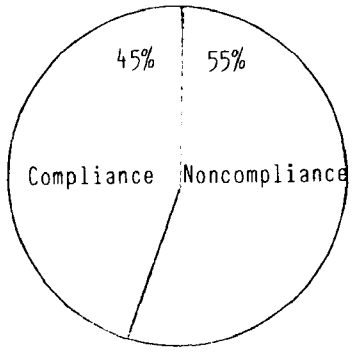
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	191	4	70
Facilities Meeting 1982 Permit Requirements+	N/A	4	65
Percentage of Facilities for Which Requirements Being Met	N/A	100%	93%
Percentage of Flow for Which Requirements Met+	N/A	N/A	N/A

Total Permits in Effect in 1982
1,257

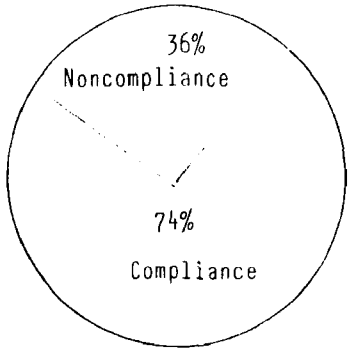
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

A considerable amount of effort will be concentrated in the agricultural non-point source area. The Division is participating with the State Rural Clean Water Coordinating Committee and other agriculture related committees, and work with the Tennessee Department of Agriculture's Agriculture Resources Section (ARS) in developing a priority ranking system for NPS agriculture related pollution sources in Tennessee.

The Division plans to work closely with the designated management agency for agriculture NPS pollution in developing a comprehensive and implementable non-regulatory program. An understanding will be developed between the designated management agency and the other agriculture agencies to coordinate work responsibilities in the implementation program. The designated agency will have the lead role in establishing a set of criteria for ranking priority areas of the state where implementation activities will occur. This will include a system for data collection and management and data input into the priority ranking system.

The Division has also supported the Reelfoot Lake RCWP. It has conducted an extensive lake monitoring program to provide a water quality data base for evaluation of the RCWP program.

The Division will be working with the Tennessee Department of Conservation, Division of Forestry (the designated management agency for forestry related NPS pollution activities), in conducting a revision of the assessment of forestry activities and their impact on water quality, including the development of an implementation plan for forestry NPS pollution control activities.

The Division has assisted the Knoxville Areawide 208 in their National Urban Runoff Project (NURP).

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	M/W	I/L	M/L	I/L	M/L	N/A	M/L
Primary Pollutants	SS	NUT SS,P	SS	M pH,SS	SS	O*	N/A	M,O**

*Low D.O. **Toxics

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The Division of Water Management Enforcement Policy defines the situations that require enforcement. They are, in general, situations that endanger the public health or environment. There are also provisions for enforcement of other violations with the approval of the Director.

The available enforcement options remain the same. The Commissioner can issue Orders for corrective action. These orders in some instances may invoke sewer moratoriums. These are appealable to the Water Quality Control Board. He can issue a Civil Penalty Memorandum which recommends a civil penalty action before the Water Quality Control Board. The Commissioner may issue Damage Assessments to recoup damages or investigatory expenses to the State. There is the option of various court actions, although these are nearly always reserved for emergencies and the enforcement of Commissioner's Actions or Board Actions.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

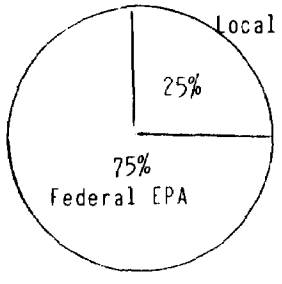
Total Number of Facilities:	344	(Municipal only)
Number of Pre-Administrative Actions:	318	
Number of Administrative Actions:	30	
Number of Judicial Actions:	28	

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $503.949,694 Million

By Percentage



Categories of Sources

Federal - EPA:	$403.159,755 Million
Other Federal:	$
State:	$ - 0 -
Local Match:	$100.789,939
Other Local:	$

C. Program Activities

The Division is committed to the continued success of the permit program in Tennessee to protect the environment and assure a clean supply of water for future generations to use and enjoy. The state permit program regulated industrial dischargers, municipal sewage treatment plants, small business and commercial facilities, and mining operations. In FY 1972, the Division issued 357 permits to dischargers. In successive years, the number of permits issued has grown to more than 7500 by June 1981, with the highest production year in 1975-76 with 1,286 permits issued. This monumental effort has involved many site inspections, countless hours of plans review, and a tremendous amount of field investigation and data collection to verify the permit conditions.

The Division will be continuing its program of data and information gathering in its effort of ongoing assessment of the quality of the State's waters. These efforts will take the form of intensive surveys and field investigations. A number of these will be performed to identify current conditions in areas where information is unavailable or very old and current data is necessary. Some will be used to assess localized areas and/or gather information relative to a specific discharge or suspected problem area. Others will be done to gather stream information which will be used to support the permitting program and the construction grants and loans information needs via the priority ranking system.

The training of staff will continue to be emphasized. For new employees, there will be a continuation of a Division developed orientation program which encompasses curricula from Tennessee and EPA training programs at the Division's training facility in Murfreesboro, and as appropriate, at selected water and/or wastewater treatment plants within the state.

Because of the "newness" of the proposed groundwater protection strategy, the Division of Water Management plans to intensify training and career development in this area. In addition to the new employee orientation program, selected staff training will be intensified to include in-depth training of experienced field personnel to increase the level of their expertise in groundwater monitoring, evaluation, and protection strategies. Further career development will be selectively afforded to staff members at privately sponsored training sessions and national conventions dealing with groundwater protection.

VI. SITE-SPECIFIC SUCCESSES

Significant strides toward improving water quality in Tennessee have resulted in cleaner waters and more efficient management programs. Numerous examples exist of the efforts of the Division of Water Management in cooperation with local, state and federal agencies in cleaning up badly polluted and potentially dangerous streams and waterways in Tennessee.

Several years ago, the East Fork of Mulberry Creek in Lynchburg could be pointed out as one of the worst polluted streams in the State. Years of neglect had created conditions in the stream which were at best an eyesore and a nuisance, and at worst, a health hazard. Cattle feedlot runoff carried tremendous amounts of waste resulting in high levels of bacteria in Mulberry Creek. Alarmed that this could result in widespread infections of cattle or humans, the Division of Water Management, Jack Daniels Distillery, the Moore County Soil Conservation District, and local farmers, all agreed on a course of action that would remedy the problem. Local farmers who purchased their animals' mash diet from the Distillery would comply with a Soil Conservation Service approved feedlot site plan. The plans considered the size of the operation, nearness to local streams and potential for pollution following rainfall. Feedlots were relocated, feeding practices adjusted, and feed delivery techniques modified; all with the goal of improving the water quality in Mulberry Creek.

It worked. Within a short time, bacteria in the creek diminished, and animal life that had not been seen in Mulberry Creek for years had begun to return. This succesful cooperative effort is continuing today as local farmers, government agencies, and private businesses work together to improve the quality of life in Moore County.

The Division of Water Management recently worked with the City of Gallatin to correct another potentially hazardous situation. During periods of heavy rainfall, the undersized pumping station that served the Gallatin Sewage Treatment Plant was forced to bypass sewage and volumes of water that it could not handle into Town Creek, a small tributary of Old Hickory Lake. Investigations of complaints and intensive water quality surveys of the area revealed abnormally high numbers of bacteria in the water samples. The City of Gallatin agreed to install a larger pump and move the location of the bypass closer to the treatment plant and any bypass will not be released to the smaller confines of Town Creek. Subsequent bacteriological studies have shown marked improvement in Town Creek and much lower bacteria counts. The residents of the nearby area have expressed satisfaction in having this problem solved.

Visitors to the Gatlinburg area several years ago could enjoy any number of recreational opportunities, but the West Prong of the Little Pigeon River was not among the recommended tourist attractions. The tremendous influx of visitors during peak seasons caused a severe strain on the Gatlinburg and Pigeon Forge sewage treatment plants and as a result, both were forced to bypass into the Little Pigeon River. The Department of Public Health posted signs along the river warning against public use of the water. A sewer moratorium was placed on both Gatlinburg and Pigeon Forge as a temporary measure until a more permanent solution could be found. Through state and federal assistance, both plants were upgraded to provide advanced treatment of sewage. This level was recommended both to protect the river and return it to usefulness as a high recreational area. Both systems are currently in compliance with applicable state and federal standards and considerable improvements are now seen in the West Prong of the Little Pigeon River, which serves to further enhance the attractiveness and scenic beauty of the Gatlinburg area.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Several problems focus on the drinking water supply program. First, a plan must be developed to address the non-community water supply systems. These are predominantly wells, and serve a small or transient population. This would include industrial plants, service stations, churches, restaurants, motels, state parks, boat docks, and others. There is not presently enough manpower, nor a program to assure that the nearly 1600 known non-community suppliers comply with the provisions of the Safe Drinking Water Act. Only about one of every four non-community systems are monitoring on a routine basis and it is nearly impossible to keep a current inventory of these systems due to their very nature. There is also a need to revise the state statute in order to better address the current problems. The issue of water quantity needs to be addressed as well as water quality. The enforcement tools available to the Division need to be broadened. This would allow for better action on the part of Division personnel and a better chance for increased compliance with the law.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of
x population and industrial growth.
x - Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point
x sources.
x - Municipal wastewater plant operation, maintenance, and rehabilitation.
x - Pollution arising from abandoned industrial and/or mining facilities.

A related problem is one dealing with groundwater protection. A great many people in the state, particularly West Tennessee depend on groundwater for their drinking water supply. Not much is known about groundwater hydrology and there is only one program in existence which attempts to regulate groundwater problems. The extent and condition of some of the aquifers that serve Tennessee is not known. Once an aquifer is contaminated, the education or technology necessary in many cases to contain it or clean it up is not available. Since a "cure" for a polluted aquifer is either impractical or impossible, the only solution is prevention. If Tennessee is to protect these invaluable resources it must now begin to seriously face this issue, which will come sharply into focus as developers seek to explore and mine the extensive deposits of lignite coal in West Tennessee. Further attention to point source dischargers must also be a priority item. More municipal plants must be brought up to standard or face continual problems with downstream water users and run the risk of health problems and loss of recreational uses.

Work with hazardous materials, and more specifically, abandoned dumpsites has brought to light new areas of concern and problems. Primary among these are the unknown propensities of many chemical compounds and the importance of our groundwater resources. Many environmental problems now being encountered are complicated by these factors.

AGENCY PREPARING REPORT: TENNESSEE DIVISION OF WATER MANAGEMENT

150 Ninth Avenue, North/Nashville, TN 37203

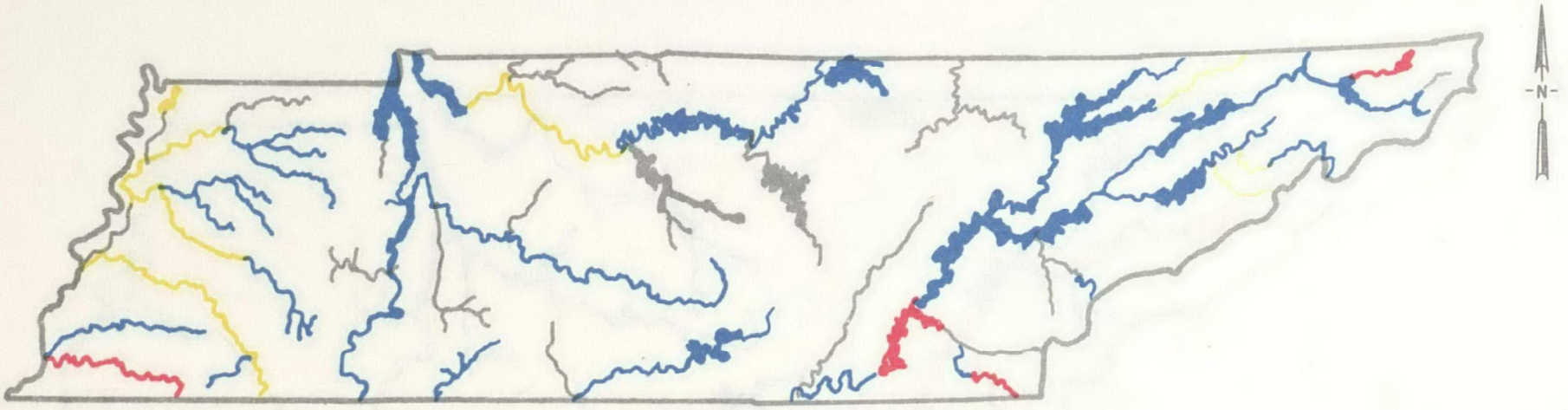
CONTACT PERSON & PHONE #: D. Elmo Lunn, Director/615-741-6623

DATE: Report Prepared July-August, 1983

TENNESSEE
1972

EVALUATION OF DESIGNATED USES

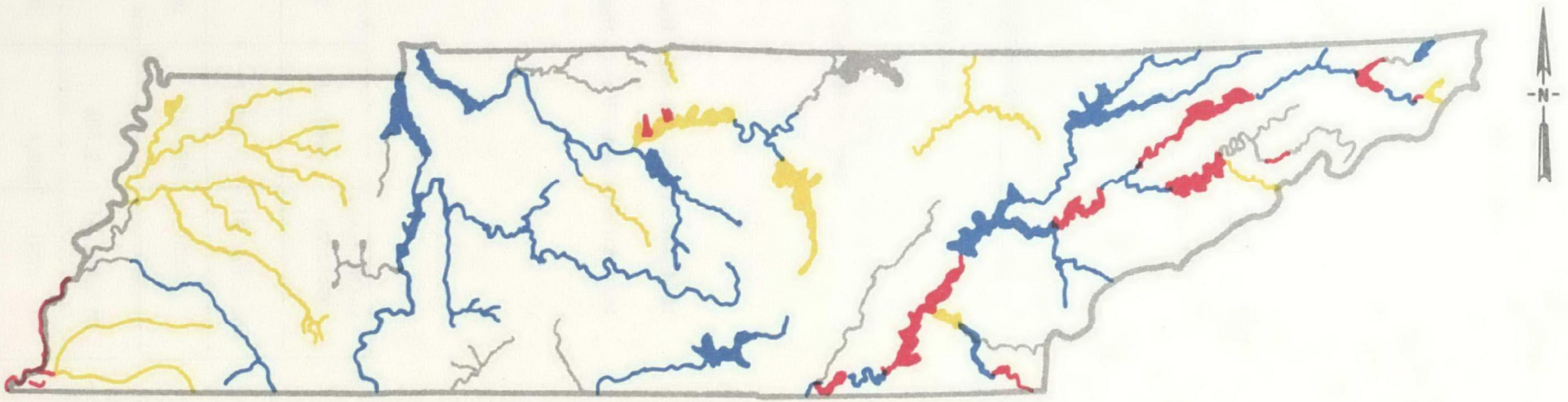
- Use Supported
- Use Partially Supported
- Use Not Supported



TENNESSEE
1982

EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported



State of Texas*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 11,198,655 1980 14,228,383
State Surface Area 267,338 sq. miles
# of River Systems/Basins 23
# of River and Stream Miles 80,000 mi.; # of Border Miles* 660 mi.
# of Lakes and Ponds and Acreage 186 / 1,616,781 ac.
# of Marsh or Wetlands ac./sq.mi. 400,000 ac. or 625 sq. mi.
# of Coast Miles 367 mi.
# of Estuary sq. mi. 2,350 sq. mi.

*Border Rivers:

Name/Mileage Sabine River, Lake & Pass/180 Name/Mileage

Name/Mileage Red River/480 Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

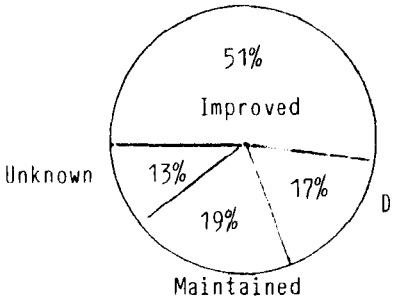
1. a. Miles Assessed: 14,368.3
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 1,974.9
   d. Miles Monitored: 14,368.3

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	6,003.8 mi.	2,458.5	3,944.4	1,961.6	14,368.3 mi.
	41.79%	17.11%	27.45%	13.65%	100%
1982	9,678.5 mi.	1,902.1	2,421.5	366.2	14,368.3 mi.
	67.36%	13.24%	16.85%	2.55%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	2,805.6	4,639.1
Miles Degraded:	682.2	1,705.9
Miles Maintained:	2,691.9	
Unknown:	33.5	1,810.1

B. Lakes and Reservoirs

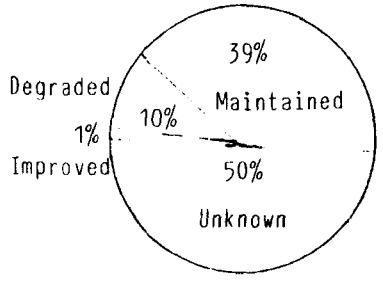
1. a. Acres Assessed: 1,338,000
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 1,338,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	681,100 ac.	64,900	1,100	590,900	1,338,000ac.
	50.9%	4.86%	0.08%	44.16%	100%
1982	1,117,600 ac.	56,800	0	163,600	1,338,000ac.
	83.53%	4.24%	0	12.23%	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	7,800	1,100
Acres Degraded:	119,000	12,200
Acres Maintained:	524,000	
Unknown:	17,100	656,000

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	5,835.971	/
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	3.725	/
	d. Sq. Mi./Miles Monitored:	5,835.971	/

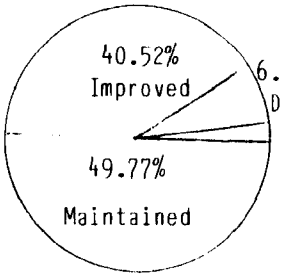
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	1,118.43	4,654.845	0	62.696	5,835.971
	19.17%	79.76%	0	1.07%	100%
1982	5,705.42	0	130.551	0.0	5,835.971
	97.76%	0	2.24	0	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

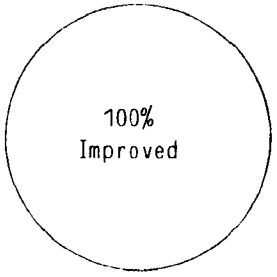
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	0.0	805.951
Sq.Mi.Degraded:	0.0	130.551
Sq.Mi.Maintained:	990.003	
Unknown:	0.0	62.696

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	0	3,846.77
Miles Degraded:	0	0
Miles Maintained:	0	
Unknown:	0	

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

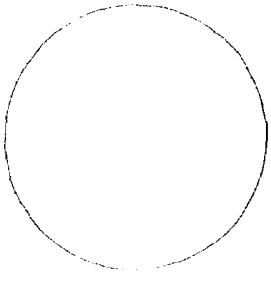
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

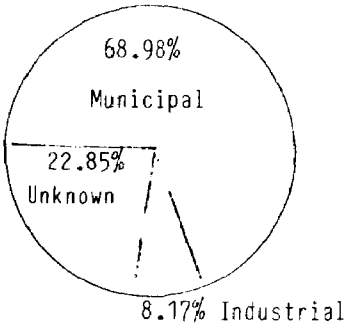


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

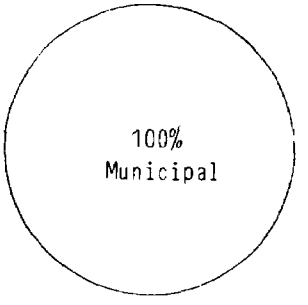
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

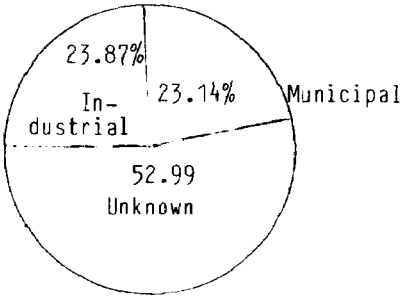
a. Streams and Rivers



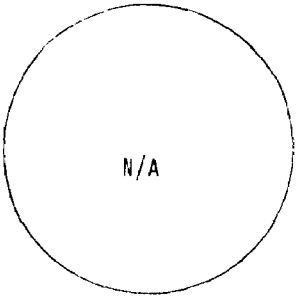
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli./D.O.
Industrial		X							D.O.
Non-Point									
Other (inc. natural)									

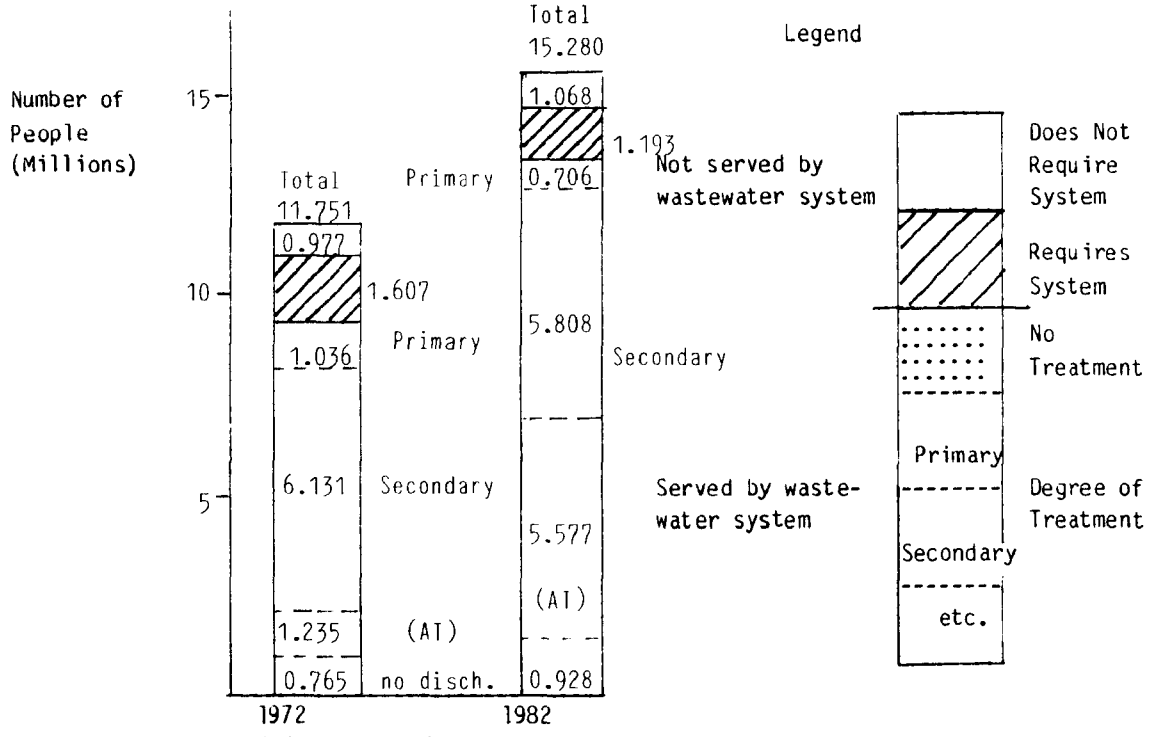
*Number of Stream/River Miles Affected by Toxics: 1,031.3
*Number of Lake/Reservoir Acres Affected by Toxics: 0.0
*Number of Estuary Square Miles Affected by Toxics: 123.827
*Number of Ocean or Great Lakes Mi. Affected by Toxics: 0.0

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

III. POINT SOURCES

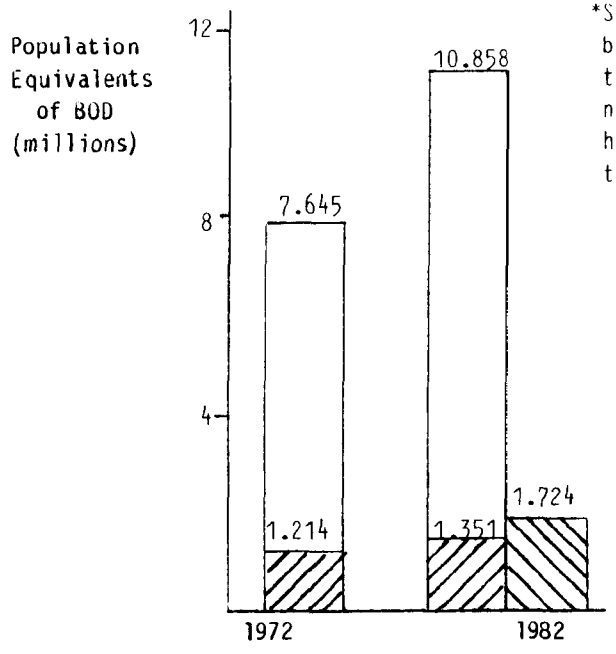
A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:

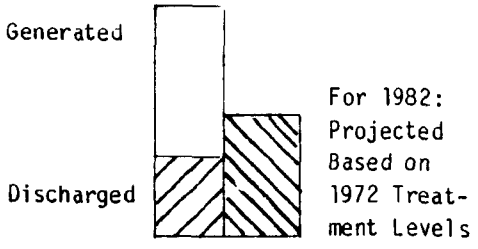


*Includes facilities funded for construction

2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



*Since state population increased by 3,529,000 between 1972 and 1982, the assumption of 1972 treatment levels in 1982 is very optimistic. If nothing had been done many 1972 facilities would have been severely overloaded in 1982 and unable to perform at 1972 levels of treatment.



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

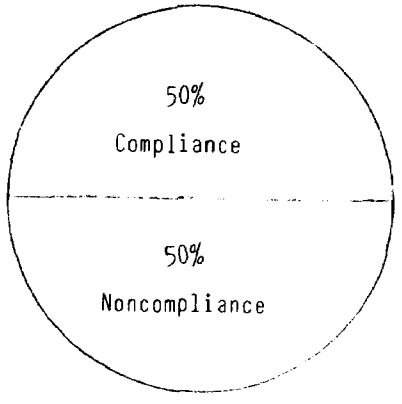
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	241		300	
Facilities Meeting 1982 Permit Requirements+	120		217a	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	50%		72.3	
Percentage of Flow For Which Requirements Met+	38.0%		60.6%	
Facilities Needing Upgrading	N/A		52b	2097c

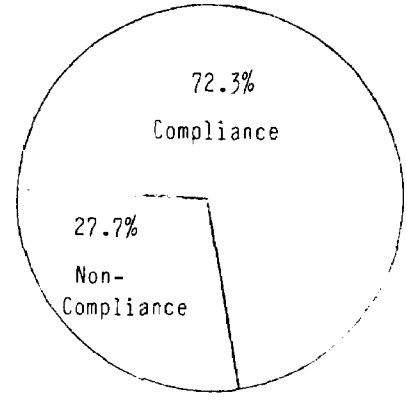
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance[e]: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	131		105	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	110		102	
Percentage of Facilities for Which Requirements Being Met	83.97%		97.1%	
Percentage of Flow for Which Requirements Met+	97.4%		99.9%	994d

+Includes "No-Discharge" Facilities

a Includes facility improvements during 1982 and attainment of permit limits. These do not include 24 facility improvement projects ongoing or monies available to proceed.

b Twenty-four of the 52 facilities are in construction or have monies available to proceed. Twenty-eight of the 52 facilities have applied for federal grant monies.

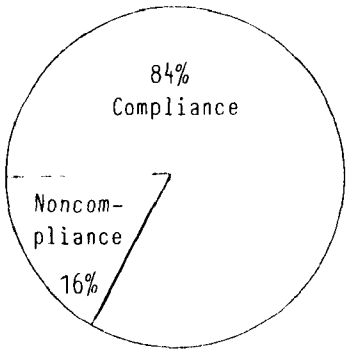
c The total number of permits in effect do not include 366 municipal no dischargers.

d The total number of permits in effect do not include 198 non-municipal no dischargers.

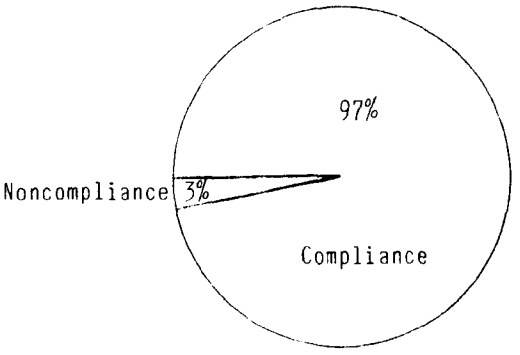
e Data source for this section is permittee self monitoring. This is unverified data.

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Water Quality reports developed by and for the Texas Department of Water Resources have not identified any stream segments which are not meeting current stream standards because of nonpoint source contributions. Indications of potential surface water quality problems resulting from nonpoint sources have been identified in several stream segments within the State. The verification of site specific cause and effect relationships which provide the basis for detailed evaluation of control mechanisms are limited. Several long-term site specific evaluations in areas and stream segments which have been determined to have the highest potential for water quality problems are in progress.

Erosion controls and an extensive soil conservation program established with the aid of the Texas Soil and Water Conservation Board, the Agricultural Conservation and Stabilization Service, and the Soil Conservation Service has existed in Texas for approximately 40 years. Many of the activities coordinated through these agencies have secondary effects of protecting water quality. Some urban areas of the State have both structural and non-structural mechanisms to control urban runoff.

During the 208 planning process several methodologies were developed for use in water quality management planning related to nonpoint source water quality problems. Implementation of methods included in these documents is contingent upon completion of definitive cause and effect investigations.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent								
Primary Pollutants								

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: A Permit Compliance Assurance Program is utilized to insure the continued validity of the permit system as an effective water quality management tool. The program relies upon comprehensive monitoring to detect permit violations coupled with timely application of the regulatory responses provided in the Department's enforcement mechanism. Compliance monitoring consists of three basic elements: discharger self-monitoring reports; discharger progress reports; and discharger inspections by Department personnel. Regulatory responses to violations include warning letters, citations, enforcement compliance directives, enforcement orders, and judicial enforcement.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	86
Number of Pre-Administrative Actions:	7a
Number of Administrative Actions:	18
Number of Judicial Actions:	12

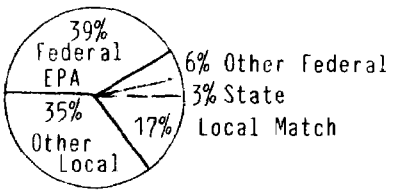
a These totals do not include enforcement conferences or letters issued by our 14 district offices.

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 3,250 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 1,244 Million
Other Federal:	$ 195
State:	$ 103
Local Match:	$ 558*
Other Local:	$ 1,150*

* Estimated. Many muncipalities use other federal and state sources to finance local share of EPA grant related projects. Total investment for EPA grant related projects was $1,951 billion ($1,244 billion EPA, $0.707 billion other).

C. Program Activities

The State of Texas under State law and with State funds has developed several effective water pollution control programs which predated many of the provisions of the Federal Water Pollution Control Act. Texas had a uniform requirement for secondary treatment for wastewater treatment plants several years before the passage of Federal Acts. In addition, the State has had a waste discharge permit program since 1962, a stream monitoring program to establish baseline and trend data of in-stream water quality since 1956, surface water quality stream standards since 1967, and a waste load evaluation program to support the permit program since 1968. Other programs which have been administered through the State Health Department and subsequently the Texas Water Quality Board, created in 1965 and the Texas Department of Water Resources, created in 1977, include a self-reporting system wherein waste dischargers are required to report monthly on the quantity and quality of the wastewater discharged, requirements for the control of toxic heavy metals in wastewater and areawide waste treatment planning program.

The approach to achieving water quality goals under both State and Federal law are basically the same in that we (1) establish water quality standards by stream segment for the desired uses, (2) develop waste load allocations by stream segment to determine the assimilative capacity of streams, (3) determine discharge treatment levels in order that stream standards will not be substantially affected, (4) impose the required treatment level by permit, (5) monitor permit compliance through inspections and self-reporting procedures, (6) enforce the permits, and (7) measure in-stream water quality to verify the results.

PROGRAM EXPENDITURES FOR 1972 AND 1982

	1972	1982
Total Expenditures	$4,638,900	$14,750,000
Federal Portion	$ 873,200	$ 9,263,700
State Portion	$3,765,700	$ 5,487,200

VI. SITE-SPECIFIC SUCCESSES

Much of the growth and development of the Houston area over the past 50 years is attributed to the construction of the Houston Ship Channel which has made the Port of Houston the third leading shipping port in the United States. The dredged, tidal channel was constructed along the natural course of Buffalo Bayou and is hydraulically connected to six estuarine bays before it empties into Galveston Bay and the Gulf of Mexico. In addition to stormwater runoff from 13 tributaries which drain the densely populated Houseton area, more than 455 million gallons per day (1981) of industrial and municipal wastewater are discharged to the system. In 1968 approximately 460,000 pounds per day of BOD was being discharged to the channel and it was essentially devoid of oxygen, septic and black, with an oil sheen covering a large percentage of its surface. It was often referred to as a "water wasteland" and "potentially the most explosive body of water in the U.S." and the resources of Galveston Bay were threatened.

Through major efforts of federal, state and local agencies and the permitted dischargers the total waste load to the channel has been reduced by approximately 80% during the decade of the seventies. With federal grant assistance the construction of several large treatment facilities with advanced treatment requirements is proceeding and should contribute to needed further reduction of waste load and maintenance of the water quality of the Ship Channel and Galveston Bay. Commercial and sport fishermen reported in 1979 that Galveston Bay and the side bays were the most productive they had been for 30 years. The continued growth in this area will require further reduction of waste load or other alternatives to insure the integrity of water quality in this area.

The tidal area of the Lower Neches River has been dredged for approximately 25 miles to form a deepwater navigation channel connecting Beaumont with the Intracoastal Waterway and the Gulf of Mexico. In addition to the municipalities of Beaumont, Port Arthur, and Orange, 30 major oil refineries and chemical plants are located in the area.

In 1968, the waste load discharged to the river was 223,500 pounds per day, primarily because of inadequate treatment of the industrial and municipal wastes from the area. Waste loads from nonpoint sources also contributed to the loading through urban and industrial runoff, spills, and other problems. Impact of the wastes was intensified by the flow conditions of the river from which water is diverted upstream for domestic municipal, and industrial purposes. About five months out of a year, during low flow conditions, there is insufficient water to keep the lower portion of the river flushed. Then, during high flow conditions of late winter and early spring, the waste loads that had been "ponding" in the lower reach of the river were flushed out into Sabine Lake Estuary and the Intracoastal Waterway.

In 1970, all of the industries and municipalities were required to upgrade their waste treatment systems and more restrictive discharge permits were issued. In 1974, construction was started on two regional waste treatment plants, completed in 1976. And, with the help of construction grants to municipalities from EPA, the efforts have been significant. Waste loads have been reduced from the 223,500 pounds per day in 1968 to approximately 20,000 pounds per day by 1979. The lower segment of the Neches River, which was ranked as the second most polluted in the State, now ranks 67 out of 308 segments in terms of needed pollution abatement.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Texas population has increased rapidly since the first census in 1900. In each decade growth has been above the national increase and in the decade of the 1970's the increase was much greater than the national average, 27.1 percent for Texas and 11.1 percent for the Nation. The population of Texas in 1900 was 3.0 million persons. In 1930, the population of Texas had risen to 5.8 million, in 1960 to 9.6 million and in 1980, to 14.2 million. Texas has developed into a broad-based industrial, service, trades, energy, and agricultural economy. The people, the economy, and the environment must have dependable supplies of suitable quality water in order to survive and to be able to continue to prosper.

Rapid population growth and economic development and demographic changes, coupled with a climate in which water resources are scarce, have resulted in water supply problems in many areas within the State. Industrialization and population increases have resulted in steadily rising water requirements and water quality protection needs for the large cities of the State. Rural areas of Texas are also confronted with water supply problems.

Extensive development of ground water has created numerous problems, some local in nature, while others are more widespread. In West Texas, the rate of use of water stored in the Ogallala Aquifer for agriculture and other purposes far exceeds the rate of natural recharge, and in parts of the Gulf Coast, large-scale pumpage of groundwater has resulted in land surface subsidence and saltwater encroachment in localized areas. Problems of water quality, both from natural and man-made causes, affect the availability for use of water from portions of most Texas' subsurface, water-bearing formations.

Part B. Major Remaining Problems:

- Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- Groundwater resource quality protection or supply assurance.
- Identification and control of toxic pollutants from industrial and non-point sources.
- Municipal wastewater plant operation, maintenance, and rehabilitation.
- Pollution arising from abandoned industrial and/or mining facilities.

Water quality problems, both natural and man-made affect a significant part of the State's surface water resources. Problems of naturally occurring salinity are particularly severe in the upper reaches of the Red, Colorado, Brazos, and Pecos River Basins and continue to plague development and full beneficial use of water resources in these basins. In these areas, natural pollution, primarily sodium chloride, results from salt springs and salt flats within the drainage areas of the basins. In some areas, this problem has been aggravated to some extent by oil and gas exploration and production activities which took place many years ago.

Many of the man-made water quality problems occurring in Texas streams originate from highly populated urban areas including Dallas-Fort Worth, Houston-Galveston, San Antonio, and others. The Trinity River below Dallas is dominated by treated sewage effluent during summer months. A similar situation exists in the San Antonio River below the San Antonio metropolitan area. In the Houston-Galveston metropolitan area, water quality problems are aggravated by urban development and an intensely developed industrial base.

It is estimated by the year 2000 more than 2,300 municipal wastewater treatment facilities including new construction, rehabilitation, and expansion will be needed in order to meet the goals of the federal Clean Water Act. Based on January 1, 1980 dollars, it is estimated that between 1985 and the year 2000 more than $5 billion from federal, State and local sources will be required for the construction of these facilities.

AGENCY PREPARING REPORT: Texas Department of Water Resources

CONTACT PERSON & PHONE #: Clyde Bohmfalk (512) 475-3454

DATE: October, 1983

TEXAS
1972
N
EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported

TEXAS
1982

N
Evaluation of Designated Uses
Use Supported
Use Partially Supported
Use Not Supported

State of Utah*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 1,067,810 1980 1,509,000
State Surface Area 84,990 sq. miles
# of River Systems/Basins 7
# of River and Stream Miles 6,855 mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage 3,000* / 481,638 ac.
# of Marsh or Wetlands ac./sq.mi. 1,000,000 ac. or 1,600 sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage N/A Name/Mileage N/A

Name/Mileage N/A Name/Mileage N/A

* 20 acres and greater; does not include the Great Salt Lake

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

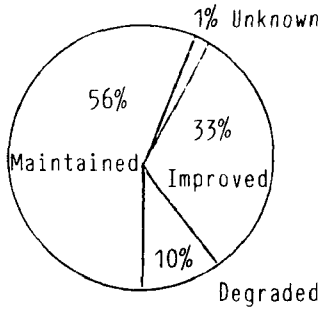
1. a. Miles Assessed: 4,252
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 3,531

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	165 mi.	1,908	841	1,338	4,252 mi.
	4 %	45%	20%	31%	100%
1982	949 mi.	2,501	81	721	4,252 mi.
	22 %	59%	2%	17%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	244	1,186
Miles Degraded:	353	56
Miles Maintained:	2,383	
Unknown:	30	

B. Lakes and Reservoirs

1. a. Acres Assessed: 481,638

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

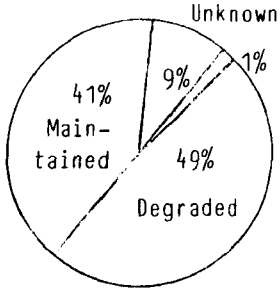
d. Acres Monitored: 439,265

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	-- ac.	--	--	481,638	481,638 ac.
				100%	100%
1982	319,384 ac.	117,991	1,890	42,373	481,638 ac.
	66 %	24 %	1 %	9 %	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

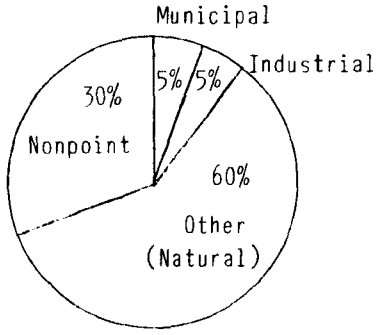


	Within Category	Change in Category
Acres Improved:	3,453	2,500
Acres Degraded:	231,298	5,018
Acres Maintained:	196,996	
Unknown:	42,373	

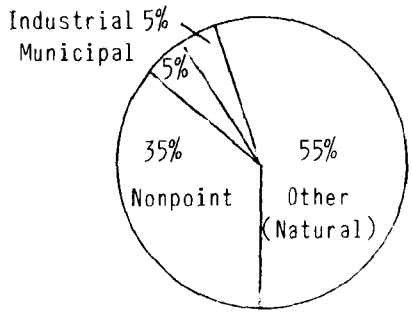
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

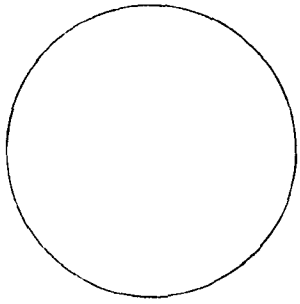
a. Streams and Rivers



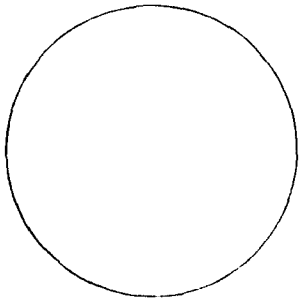
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb. (TSS)	Other	2 Most Serious
Municipal	X	X	X						
Industrial			X			Zn			
Non-Point			X				X	TDS, TSS	Nutrients
Other (inc. natural)			X			Hg, Phenols	X	TDS, Sed.	

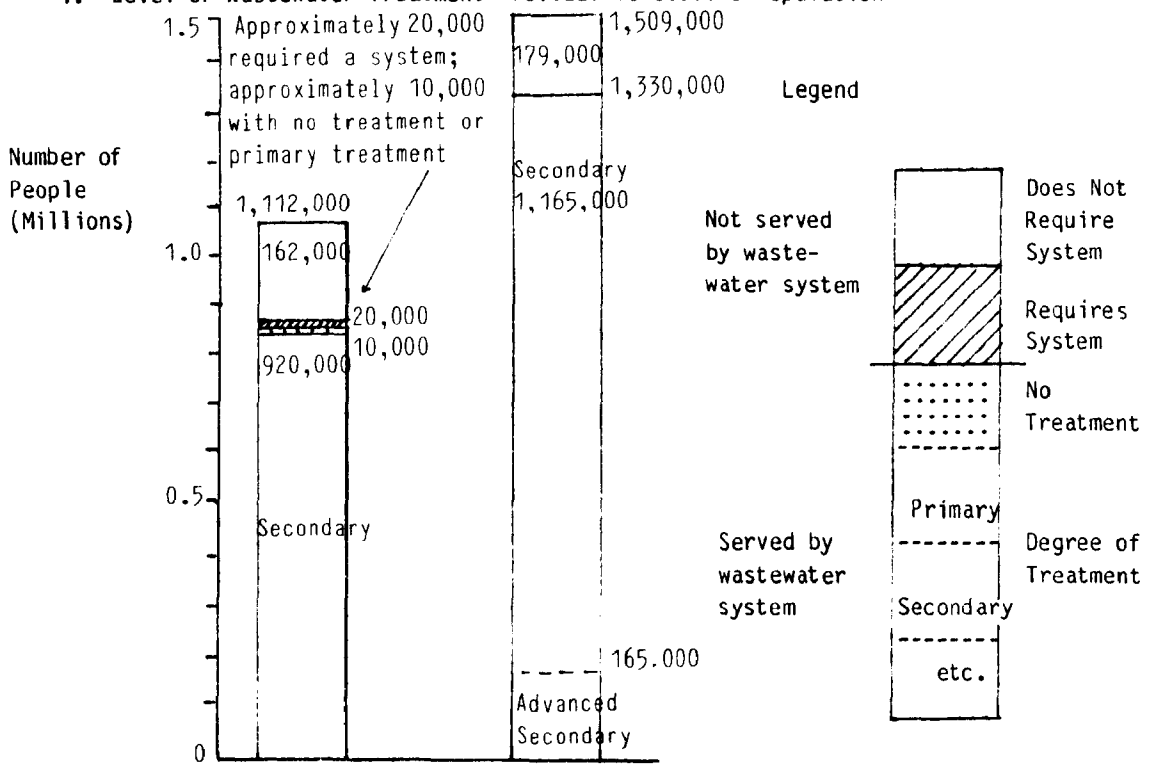
*Number of Stream/River Miles Affected by Toxics: 75
*Number of Lake/Reservoir Acres Affected by Toxics: 2,012
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

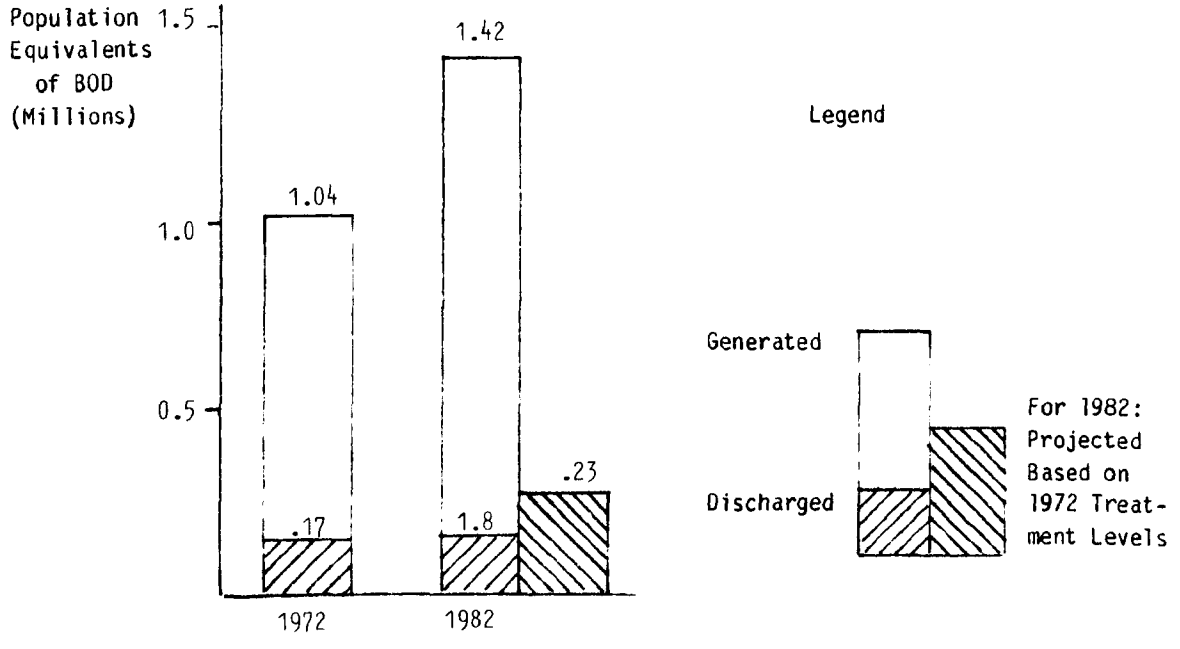
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

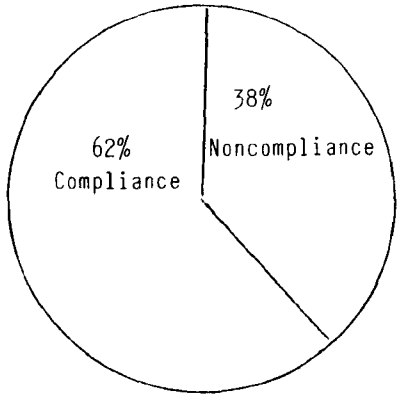
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	29	10	20
Facilities Meeting 1982 Permit Requirements+	18	8	18
Percentage of Facilities for Which Requirements Being Met	62%	80%	90%
Percentage of Flow For Which Requirements Met+	76%	91%	97%
Facilities Needing Upgrading	15	10	0

Total Permits in Effect in 1982: 90

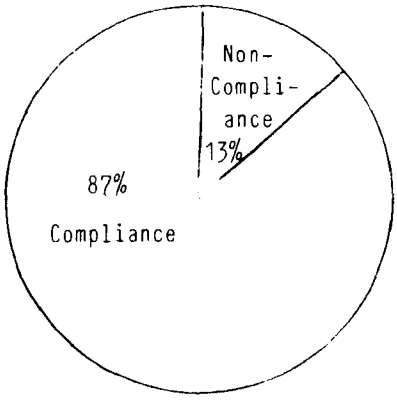
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

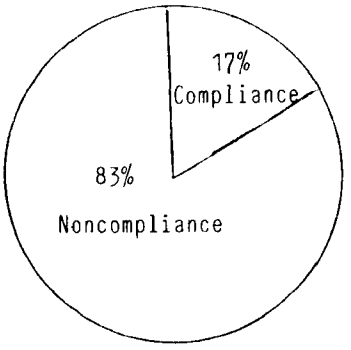
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	23	3	18
Facilities Meeting 1982 Permit Requirements+	4	2	16
Percentage of Facilities for Which Requirements Being Met	17%	67%	89%
Percentage of Flow for Which Requirements Met+	30%	85%	90%

Total Permits in Effect in 1982: 160

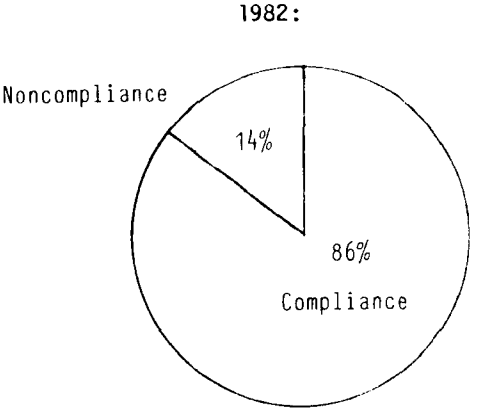
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Nonpoint source water quality problems in Utah result from natural geologic formations, agriculture, urban runoff, hydrologic modification, mining, recreation, construction and silviculture. Natural sandstone formations in eastern and southern Utah contribute significant amounts of sediments through erosion. Natural deposits of salts, phosphates, fluorides, nitrates and arsenic contribute to decreasing water quality in the State.

Agricultural water use is one of the primary sources of man induced nonpoint pollution. Waters diverted for irrigation concentrate salts and sediments in stream channels. Overland runoff contributes salts and sediments from non-irrigated crop lands and coliform bacteria from pasture land.

Utah has implemented six certified water quality management plans which interact with federal, State and local governments in planning, coordinating and monitoring water quality projects. Presently, Salt Lake County is conducting a Nationwide Urban Runoff Program. Mountainland Association of Governments is determining the effectiveness of Best Management Practices in the Snake Creek Rural Clean Water Project.

Six counties are involved with a wetland program to determine the value of wetlands in flood control, urban runoff, wildlife habitat and recreational aesthetics.

Salinity will remain a problem in Utah because of contributions of dissolved solids from natural runoff and agriculture. The State will continue to pursue salinity control activities with the resources available.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	S/L	M/W	I/L	M/L	M/L	M/W	N/A	I/L
Primary Pollutants	C,T*	SS,T,P N,T	T,N,T	T,S,pH	T,N	T,H**	N/A	C,T

*Toxics (Metals)
**Heat/Thermal

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The State's approach to enforcement against violations of state and federal water pollution control laws and regulations, once a significant noncompliance situation has been determined and the cause identified, is to initially seek voluntary compliance. This is generally accomplished through administrative orders outlining mutually agreed upon remedial measures and compliance time frames. This approach resolves over 90 percent of the noncompliance situations. If problems are not resolvable or appropriate in this fashion, stronger enforcement action is taken including issuing complaints, Consent Decrees, Construction Orders and Civil Criminal Penalties. State law does provide for substantial penalties against violations.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

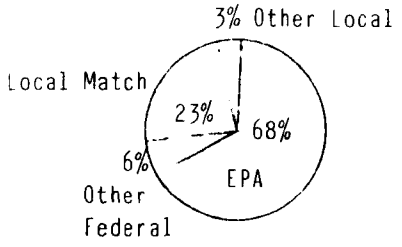
Total Number of Facilities:	7
Number of Pre-Administrative Actions:	5
Number of Administrative Actions:	2
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 213 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 145 Million
Other Federal:	$ 13
State:	$ 0
Local Match:	$ 48
Other Local:	$ 7

C. Program Activities

Specific program activities include: review and approval of all plans for water pollution control facilities in the State to determine compliance with state regulations, manage the EPA wastewater treatment plant construction grants program in Utah, conduct an operator training program to upgrade the efficiency of wastewater treatment plants, conduct a statewide monitoring program of waters of the State and effluent discharges to determine compliance with discharge standards and instream water quality standards, take enforcement actions as necessary, conduct O & M inspections of municipal wastewater treatment facilities and provide technical assistance, investigate within 24 hours all oil and hazardous materials spills reported to determine the water pollution threat and prevent or mitigate the entrance of pollutants into waters of the state, perform 208 water quality management planning activities, cooperate with EPA in conducting the NPDES discharge permit program including inspections and drafting and certifying all permits issued, establish instream water quality standards and effluent standards for dischargers, underground injection control permit program to protect underground drinking water sources from subsurface discharge of wastes.

Over the years, as resources have become available, increased emphasis has been placed on monitoring, enforcement, and nonpoint source control while maintaining a strong commitment to engineering plan reviews of all new treatment facilities in the state. Utah has primacy in the construction grants program and underground injection control program, but not in the federal discharge permit program.

VI. SITE-SPECIFIC SUCCESSES

JORDAN RIVER

Maintaining water quality in the face of a rapidly growing population serves to reflect a successful program. In Utah this situation is best exemplified by municipal wastewater control measures implemented along the Jordan River in Salt Lake County, the most urbanized area of the State. Seven municipal wastewater treatment plants discharge treated effluent to the Jordan River. The river, which was exposed to raw sewage discharges and exhibited cesspool characteristics in earlier years, is part of an ambitious parkway project which includes boating and other recreation.

In the early 1970's most of the plants were in general providing secondary treatment, though some impairment of water quality was occurring. The extraordinary population growth in the last decade has resulted in substantial increases in the mass organic loading to these plants. Since 1970, the population served by these plants has increased by 73%, but the BOD loading actually discharged to the Jordan River has increased only 7%. Interim upgrading measures facilitated by construction grant funding were partially responsible for this achievement. However, five of the facilities are presently overloaded and the other two plants are rapidly approaching capacity and impairment of water quality is occurring. Careful planning during the last decade indicated that, for the most part, further rehabilitation of the existing plants would be counterproductive. The cost effective method of solving long-term municipal wastewater pollution problems was by regionalization of facilities.

Two regional wastewater treatment plants with a combined initial design capacity of 75.5 mgd are currently under construction to replace overloaded facilities. Discharge requirements (10 mg/l BOD) for both of these facilities are based upon the designated water quality standards for the Jordan River. As these plants are completed using federal grant support and local funds, the organic loading to the Jordan River will decrease by 50%, and the water quality will be improved to achieve in-stream standards.

SNAKE CREEK RURAL CLEAN WATER PROJECT

The Heber Valley is a major agricultural and dairy production area of the State. The area drains into Deer Creek Reservoir which is used heavily for recreation, fishing, and as a water supply source for many of the metropolitan areas in Utah County and Salt Lake County. Nutrient enrichment is a major water quality problem in the reservoir.

The Snake Creek area, which is tributary to Deer Creek Reservoir, was selected as one of thirteen Rural Clean Water Projects (RCWP) in the nation. The RCWP project's aim is to remove animal wastes, primarily from dairies, from entering Snake Creek. The Agricultural Stabilization and Conservation Service (ASCS) of the Department of Agriculture is the management agency with the Soil Conservation Service (SCS) as the technical agency for implementation of on farm Best Management Practices (BMP's). Mountainland Association of Governments', the designated local 208 agency, has the major responsibility in monitoring water quality for determination of the effectiveness of implemented BMP's contained within the RCWP plan. This effort goes hand-in-hand with the recent completion of a sewage treatment facility, utilizing land disposal, which serves all sewered areas in the valley. This of course has also reduced the nutrient load entering the reservoir.

Water quality changes which have resulted from applied BMP's include reductions of phosphorus concentrations in Snake Creek. Other changes in water quality are expected as more management systems are utilized by farms in the area. Successes from this project have caused a spin-off effect in areas outside the project. Outside farms are requesting technical assistance from SCS and financial assistance from ASCS for planning and implementation of animal waste systems.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

While the data in this report show some progress in improving water quality in Utah, this achievement is more significant in light of the rapid population growth (40%) over the past decade. This growth has obviously put increased pollution pressure on the waters of the state from sewage discharges, industrial wastes, urban growth and recreation. In this type of growth situation, just maintaining existing water quality represents a significant achievement.

In spite of this progress, it must be pointed out that state resources in the program have declined significantly in the last 4 years and many activities including monitoring, nonpoint source management, and enforcement are being reduced and may be reduced further in the future.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- ____ - Groundwater resource quality protection or supply assurance.
- ____ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

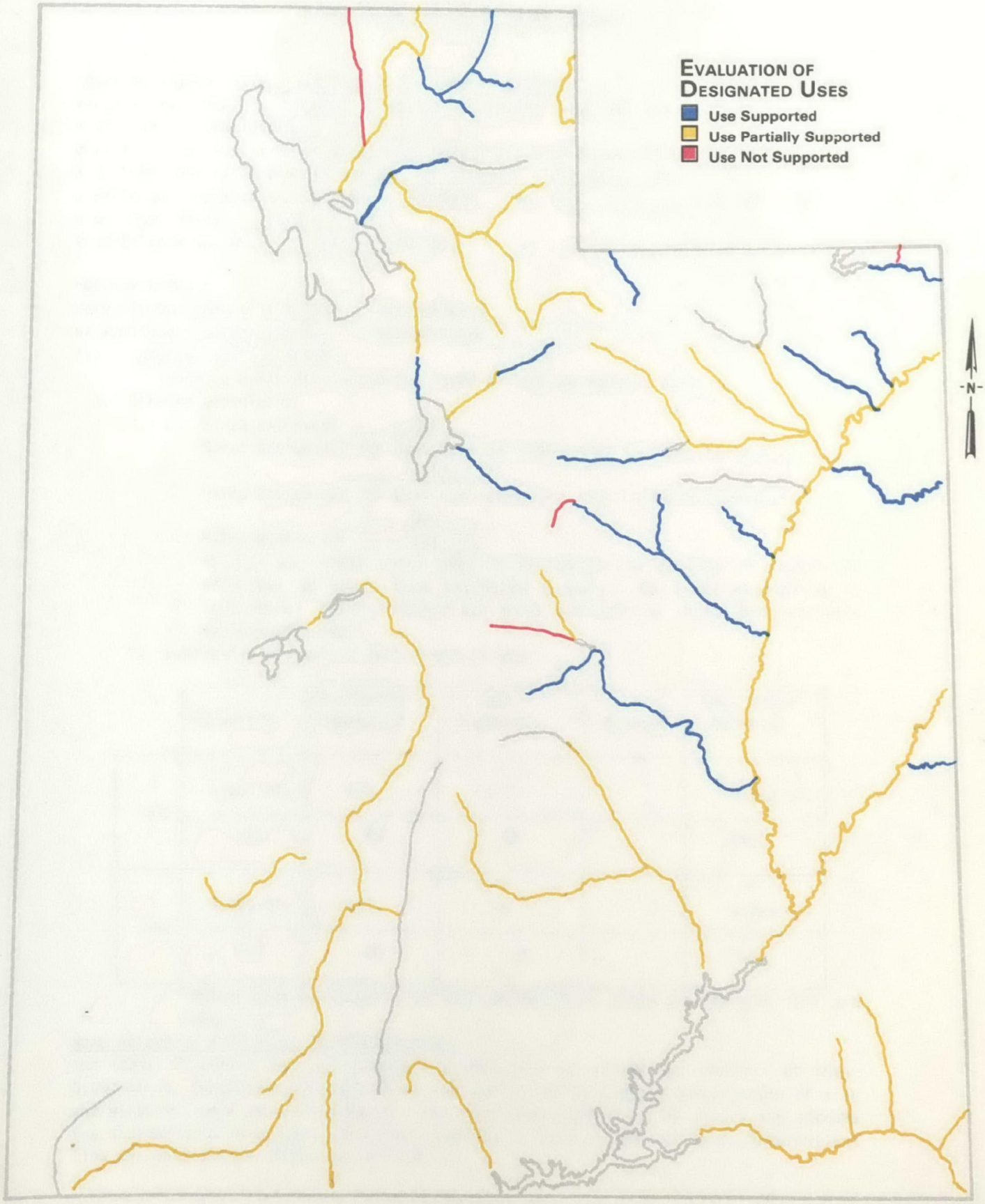
Unique conditions in Utah include the Colorado River salinity problem. Utah cooperates with the other 6 Colorado River Basin states in a comprehensive basin-wide salinity control program. Salinity in the lower Colorado River adversely affects users in Arizona, California and Mexico. A significant portion of state program resources are devoted to monitoring and implementation of the salinity control program.

AGENCY PREPARING REPORT: Bureau of Water Pollution Control
Utah Division of Environmental Health

CONTACT PERSON & PHONE #: Jay B. Pitkin (801) 533-6146

DATE: June 17, 1983

UTAH
1982


EVALUATION OF
DESIGNATED USES
Use Supported
Use Partially Supported
Use Not Supported
N

State of Vermont*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 444,732 1980 511,456
State Surface Area 9,606 sq. miles (9,278 land, 331 water)
# of River Systems/Basins 17
# of River and Stream Miles 4,863 (See Note) mi.; # of Border Miles* 264 mi.
# of Lakes and Ponds and Acreage 280 (20 acres)/ 223,329 ac.
# of Marsh or Wetlands ac./sq.mi. 110,000 ac. or -- sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:
Name/Mileage Connecticut/238 Name/Mileage
Name/Mileage Poultney/26 mi. Name/Mileage

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 4,863
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 115
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 308
   d. Miles Monitored: 264*

*Stream and river water quality monitoring in Vermont is restricted primarily to short term intensive surveys. No trend monitoring is undertaken. Miles reported are those monitored by short term intensive surveys 1972-1982.

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	4,563 mi.	189	111		4,863 mi.
	94%	4%	2%		100%
1982	4,698 mi.	121	44		4,863 mi.
	97%	2%	1%		100%

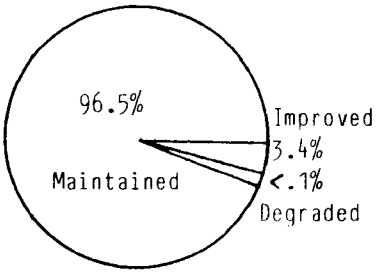
Table completed on basis of best professional judgement for both 1971 and 1982.

Note Reference # of River and Stream Miles

The State of Vermont has approximately 8,000 miles of stream and rivers. Of these 8,000 miles, approximately 5,000 miles are capable of biosupport (propagation of fish and wildlife) on a year-round basis. The remaining 3,000 miles of rivers and streams are incapable of biosupport on a year-round basis only because of their intermittent flow characteristics during dry periods.

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	--	165
Miles Degraded:	--	6
Miles Maintained:	4,692	--
Unknown:	--	--

B. Lakes and Reservoirs

1. a. Acres Assessed: 224,066 (Lake & Pond 20 acres)
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 1,236

   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 31.2

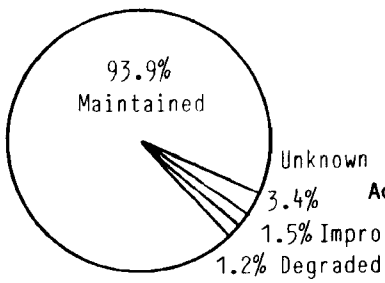
   d. Acres Monitored: 218,221

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	207,484 ac.	14,582		2,000	224,066 ac.
	92.6%	6.5%		0.9%	100%
1982	210,184 ac.	13,882			224,066 ac.
	93.8%	6.2%			100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

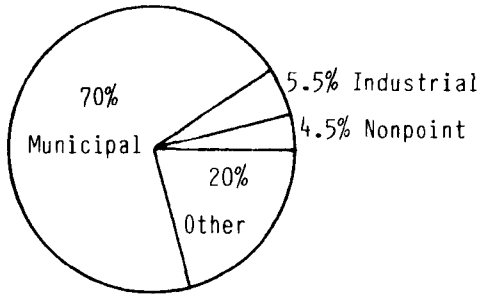


	Within Category	Change in Category
Acres Improved:	155	3,129
Acres Degraded:	2,305	420
Acres Maintained:	210,212	
Unknown:	7,845	

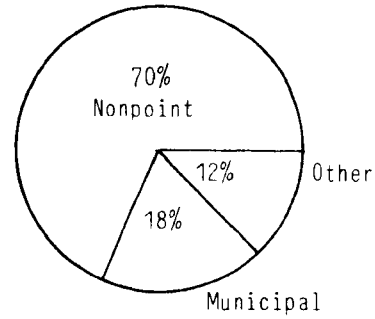
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

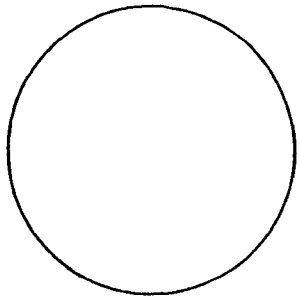
a. Streams and Rivers



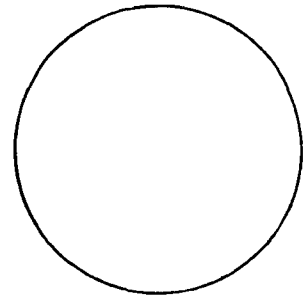
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X		X			X			Coli. TRC
Industrial						X	X		Metals, Turb.
Non-Point	X		X				X		Coli. Nut.
Other (inc. natural)			X				X	Exotic Plants	Nut., Turb., Exotic Plants

*Number of Stream/River Miles Affected by Toxics: 0
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: _____
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

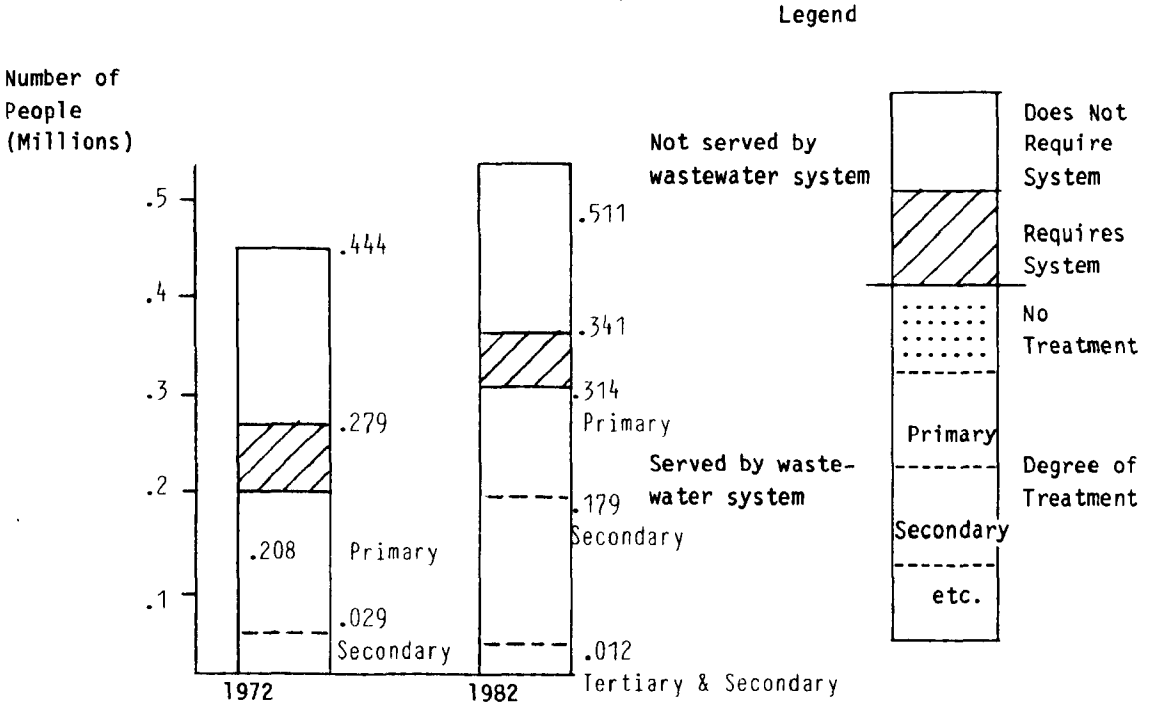
F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

NOTE: For National Report, These will be aggregated to level of Fed. Region

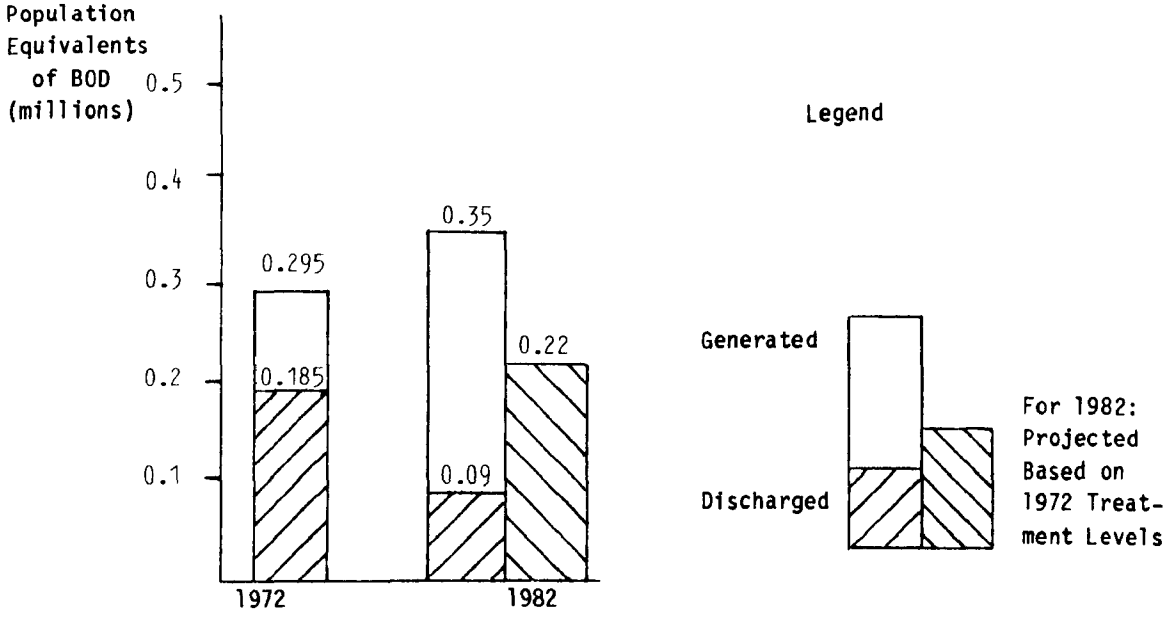
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

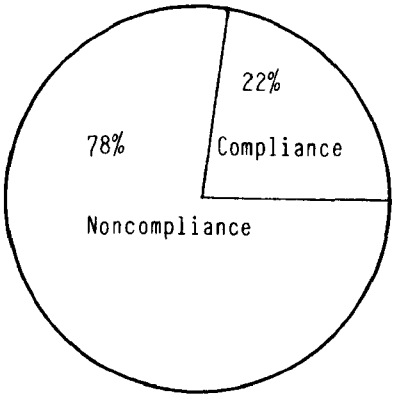
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	9	6	3	
Facilities Meeting 1982 Permit Requirements+	2	4	3	Total Permits in Effect in 1982
Percentage of Facilities for Which Requirements Being Met	22%	67%	100%	
Percentage of Flow For Which Requirements Met+	*	46%	100%	
Facilities Needing Upgrading	9	6		102

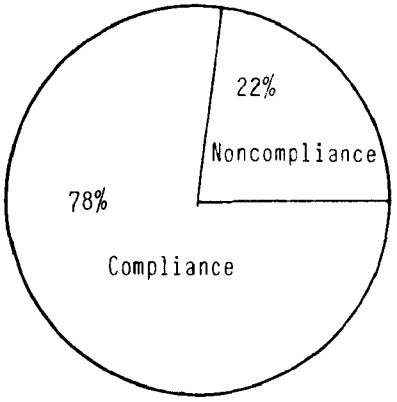
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

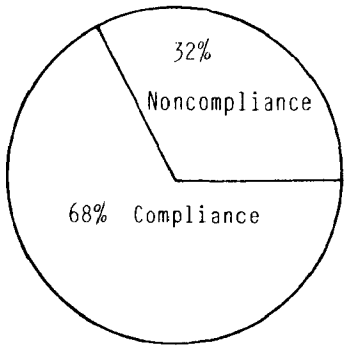
	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	22	2	29	Total Permits in Effect in 1982
Facilities Meeting 1982 Permit Requirements+	15	0	26	
Percentage of Facilities for Which Requirements Being Met	68%	0%	90%	
Percentage of Flow for Which Requirements Met+	68%	0%	87%	61

+Includes "No-Discharge" Facilities

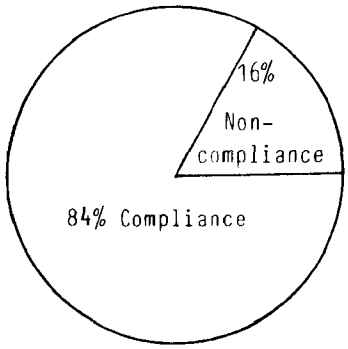
Findings in this section are based on permits written for direct discharges only.

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The primary non-point source problem is the eutrophication of embayments of Lake Champlain, Lake Memphremagog and several inland lakes due to excessive nutrient and sediment loss from agriculture and possibly urban runoff. Fishery habitat loss results from careless construction and logging erosion control practices. Some dams have created conditions for algal blooms and some release water with a dissolved oxygen deficit.

Over five million dollars have been spent for cost sharing manure storage and conservation cropping practices since the section 208 agricultural plan was adopted in 1978. One watershed project is funded under the Rural Clean Water Program. Four major and two minor watershed projects are funded under P.L. 83-566. Nutrient and sediment controls continue according to the 208 Agricultural Pollution Plan. An interim stormwater control policy is in effect. The 208 Silvicultural Pollution Control Plan encourages the logging industry to police itself. Educational guides have been distributed for agricultural, silvicultural and construction erosion and nutrient runoff control. The water quality anticipated in new dams is modeled. The operation of existing dams is under review.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	M/W	I/W	S/L	M S locally	S/L	N/A	I/L
Primary Pollutants	C, O* O**	T,O*	T,O*	pH, O** Note 1	T,O*	Note 2	N/A	O**

Note 1 - abandoned copper mine
Note 2 - low flow

*Nutrients
**Metals

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The State's approach to enforcement against water pollution control violations is to first meet with the violator and offer limited state assistance aimed at correcting the violation. No enforcement actions are taken as long as the violator is proceeding in a timely manner toward the correction of those violations. If compliance can not be gained voluntarily through assistance, enforcement actions are taken. The Permitting Section works very closely with the Operations and Maintenance Section and other engineers in the Department during the assistance phase to insure that all efforts are coordinated.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

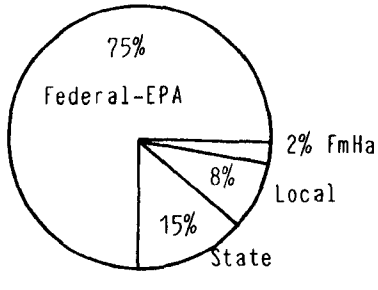
Total Number of Facilities:	7
Number of Pre-Administrative Actions:	5
Number of Administrative Actions:	1
Number of Judicial Actions:	1

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 174 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 131 Million
Other Federal:	$ 2*
State:	$ 26
Local Match:	$ 15
Other Local:	$

C. Program Activities

The water quality of Vermont's streams and lakes has continued to show notable progress. This progress is due primarily to continued wastewater treatment facility upgrading and construction and further implementation of identified best management practices for construction, silviculture, and agriculture. Realizing the importance of clean water to Vermont, the citizens of Vermont have set high objectives for water uses and high technical criteria for each class of water. To achieve this end, Vermont's Clean Water Program will continue with the following activities:

1. Focusing its emphasis on problem treatment plants rather than focusing its emphasis on artificial needs of major and minor dischargers. Emphasis over the next few years will be to attempt to assist those facilities not currently meeting their permit limits and if those facilities refuse assistance, initiate enforcement to bring them into compliance. Likewise, emphasis will be focused on upgrading existing treatment plants to greater than secondary levels on our water quality limited segments. We are reviewing expiring permits on a case-by-case basis and insuring that present water quality concerns are still being addressed by those permits.

2. Undertake water resources planning and establish management priorities with specific goals and objectives that anticipate limited federal and state fiscal resources.

3. Continue to monitor the waters of the State to assume compliance with applicable water quality standards and to resolve potential use conflicts between multi users. Likewise, undertake special studies as deemed appropriate to evaluate site specific problems and potential statewide problems.

4. Provide assistance in lake and pond management to requesting municipalities at a level contingent with available federal and state funds.

5. Continue to support training and educational activities so as to continue to inform Vermont citizens of the quality of Vermont's water resources.

VI. SITE-SPECIFIC SUCCESSES

In the early 1970's, a chief pollution problem in the State of Vermont was located in rural areas and consisted principally of discharges of domestic waste from individual homes. Installation of 15,000 plus septic systems between 1972-1974 drastically reduced pollutional inputs from individual homes such that by the mid 1970's pollution from this source was virtually eliminated. This activity was accomplished by conducting basin wide sanitary surveys to identify domestic pollution sources and by vigorous follow-up to assure compliance with State laws.

Vermont's stone products industry during the early to mid 1970's was categorized as a major industrial polluter. Substantial quantities of granite fines were being discharged to surface water courses with virtually no treatment causing excessive turbidity and suspended solids levels in the state's receiving waters. Through the combined efforts of the Vermont Granite Industry and the Vermont Department of Water Resources studies were undertaken to investigate potential treatment schemes which could be employed by the industry in the treatment of process waste streams. Ultimate success was achieved using a combination of coagulant aids and settling ponds as the basis treatment scheme. Settling ponds alone proved unsuccessful primarily because of the colloidal nature of the material to be removed and the limited available space at many existing facilities for large ponds.

The stone products industry by the late 1970's and early 1980's was categorized as a minor industrial polluter with only incidental problems occurring from individual facilities. Significant improvement has been achieved in the receiving waters in Central Vermont where the stone products industry is basically located. In areas where fisheries were once procluded because of excessive turbidity and solids levels from the stone products industry, fisheries have again reestablished themselves and are again part of Vermont's vast fisheries resource.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Management of Waste Discharges and Municipal Growth - Discharge wasteloads require monitoring so that proper facility planning, design and construction can occur prior to permit limits being exceeded and water quality violations result. Of obvious concern is the replacement or upgrading of wastewater treatment facilities with significantly reduced federal and state aid.

Protection of Upland Streams - Increased developmental pressures by construction of new recreational facilities, condominiums, residences, and commercial establishments in areas with no municipal services and limited on-site waste disposal capabilities.

Erosion/Siltation Control - Implementation of best management practices for silviculture, agriculture and construction are necessary for future water quality progress. These activities are essential for reducing non-point source nutrients.

Clean Lakes - Diagnostic/feasibility studies for lakes funded under Section 314 of the "Water Act" will be completed with the available federal funding. It is unlikely that restoration efforts on these lakes will be possible if Section 314 is not reauthorized as a part of the Act or alternative funding sources are made available.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- ____ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

Water Withdrawals - The use of small streams, especially in the upland areas, for water supplies and/or snow making operations, which requires utilizing a stream's total hydrologic capacity.

Facilities Operation and Maintenance including Operator Training - The presence of wastewater treatment facilities can not by themselves assure compliance with permitted effluent levels. The operation and maintenance of these facilities is critical to proper operation. Operator training is essential.

Wetlands - Continued identification of wetland areas; public informational seminars are necessary to stress value of wetland areas and to identify uses or abuses which result in loss of values.

Acid Precipitation - Continue to gather pertinent data on the damaging impact of acid precipitation in Vermont. Stress the need for legislation calling for the immediate reduction of sulfur and nitrogen oxidizers being emitted to the atmosphere through various sources.

Hydropower Development - Interruption of stream flow and water quality conditions created in resulting impoundments.

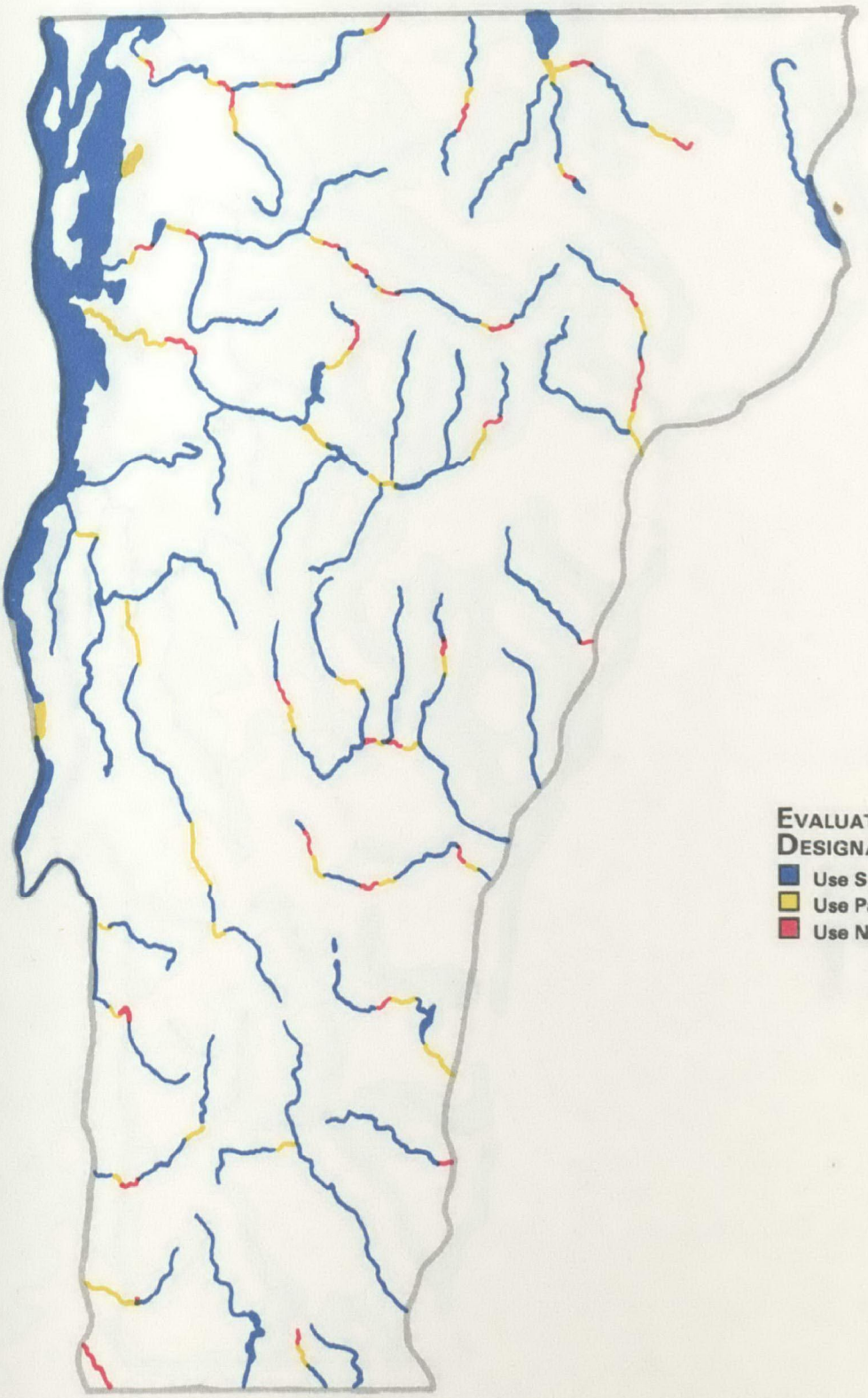
Combined Sewer and Urban Stormwater Runoff - Though identified as a problem in a large number of Vermont's Water Quality Management plans, the issue remains to be resolved.

AGENCY PREPARING REPORT: Vermont Agency of Environmental Conservation
Dept. of Water Resources & Environmental Engineering

CONTACT PERSON & PHONE #: David Clough 802-882-2761

DATE: August 12, 1983

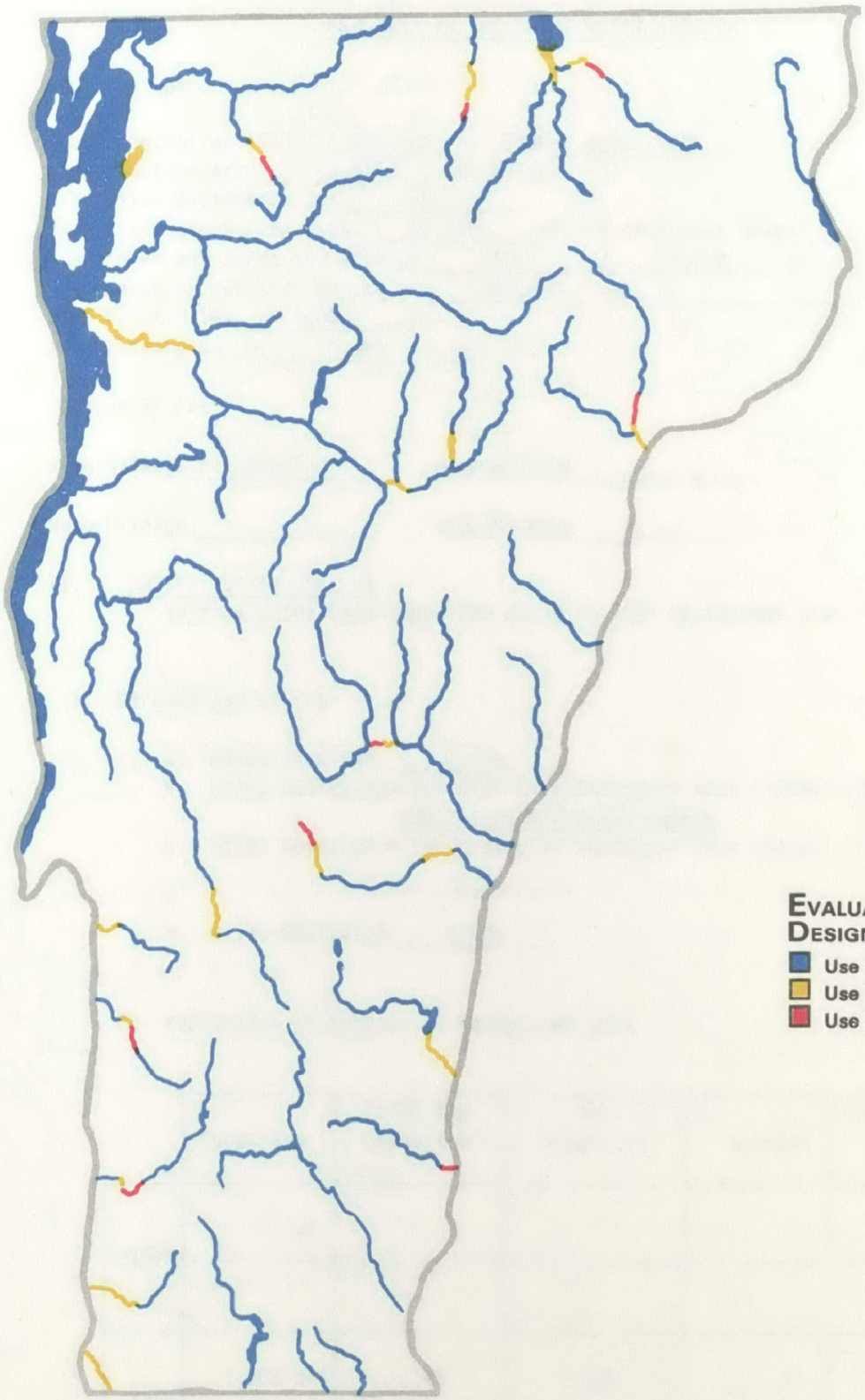
VERMONT
1972

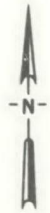


EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

VERMONT
1982





EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

State of Virginia*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 4,651,487 1980 5,346,818
State Surface Area 40,815 sq. miles
# of River Systems/Basins 9
# of River and Stream Miles 27,240 mi.; # of Border Miles* 178 mi.
# of Lakes and Ponds and Acreage 161 / 67,912 ac.
# of Marsh or Wetlands ac./sq.mi. 280,000 ac. or _____ sq. mi.
# of Coast Miles 5,000 mi.
# of Estuary sq. mi. 2,382 sq. mi.

*Border Rivers:

Name/Mileage Potomac/178 Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

1. a. Miles Assessed: 4,500
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable:
   890 mi. public water supply
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable:
   0
   d. Miles Monitored: 4,500

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
*1972	mi.				mi.
1982	1,383 mi.	1,146	1,971	0	4,500 mi.
	31%	25%	44%	0	100%

*Not Available.

3. Changes In and Within Use Support Between 1972 and 1982

We were unable to compare 1972 vs. 1982 for stream water quality data. This comparison would have necessitated analyzing the available data for 1972 in a manner similar to the method used for our 1982 305(b) Report. We would in other words, have had to reconstruct what a 1972 305(b) Report would have been in order to make the comparison. (Our earliest report is the 1975 edition, which uses a very different format than the 1982 report). This task was infeasible given the STEP project's timetable and current manpower resources.

As part of the 1982 305(b) Report we did perform extensive statistical time trend analyses for several chemical parameters, so we can say, on a station-by-station basis, if levels for a particular parameter have changed. At stations that showed a trend, the stations showing improvement outnumbered stations showing a decline (2 to 1 for oxygen and 3 to 1 for bacteria). Detailed data are avilable from the contact listed or from the ASIWPCA office.

B. Lakes and Reservoirs

1. a. Acres Assessed: 67,912

b. Acres Designated for Uses More Stringent than Fishable/Swimmable:
21,373 public water supply

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable:
0

d. Acres Monitored: 57,211

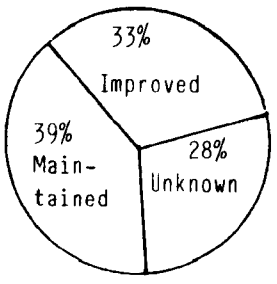
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
*1972	33,194 ac.	6,617	0	18,684	58,495 ac.
	57%	11%	0	32%	100%
1982	58,257 ac.	8,864	0	791	67,912 ac.
	86%	13%	0	1%	100%

*Data provided is for 1974.

3. Changes In and Within Use Support 1972* - 1982

By Percentage



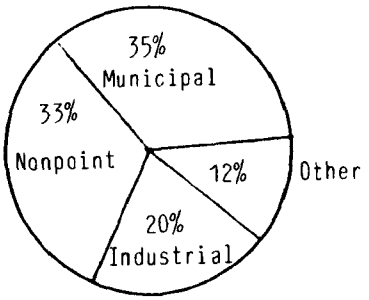
	Within Category	Change in Category
Acres Improved:	13,987	8,094
Acres Degraded:	0	0
Acres Maintained:	26,473	
Unknown:	19,358	

*Data provided is for 1974.

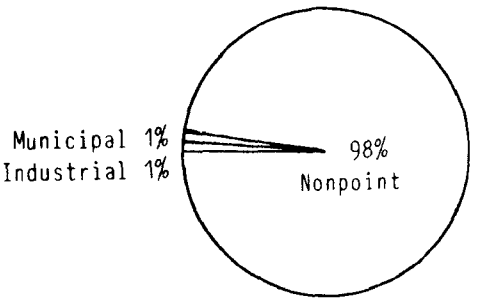
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

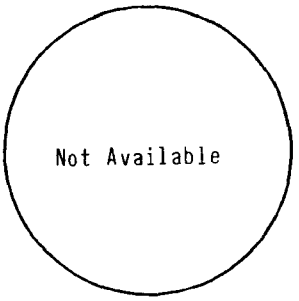
a. Streams and Rivers



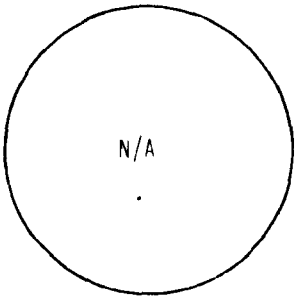
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	** Other	2 Most Serious
Municipal	X	X	X						Coli., Nut.
Industrial	X	X				X			Toxics, DO
Non-Point	X		X					X	Coli., Nut.
Other (inc. natural)				X	X				pH, Temp.

**siltation in lakes

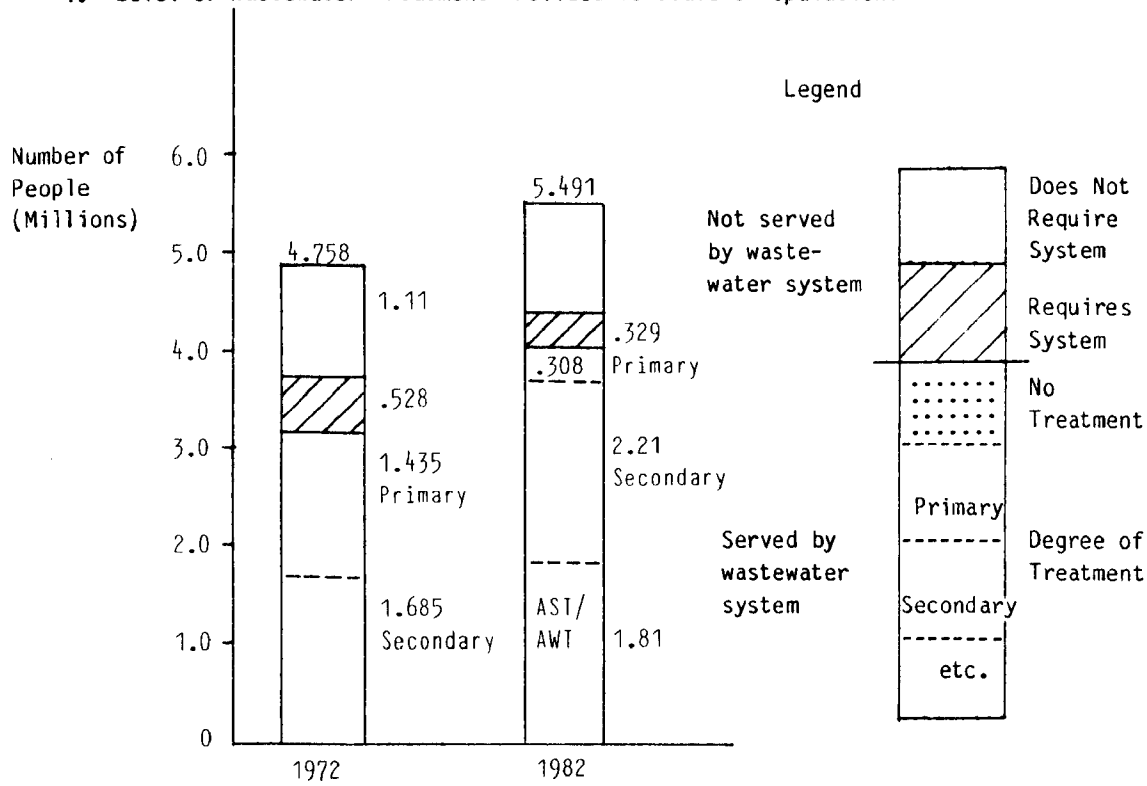
*Number of Stream/River Miles Affected by Toxics:	296
*Number of Lake/Reservoir Acres Affected by Toxics:	0
*Number of Estuary Square Miles Affected by Toxics:	113 linear mi.
*Number of Ocean or Great Lakes Mi. Affected by Toxics:	N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

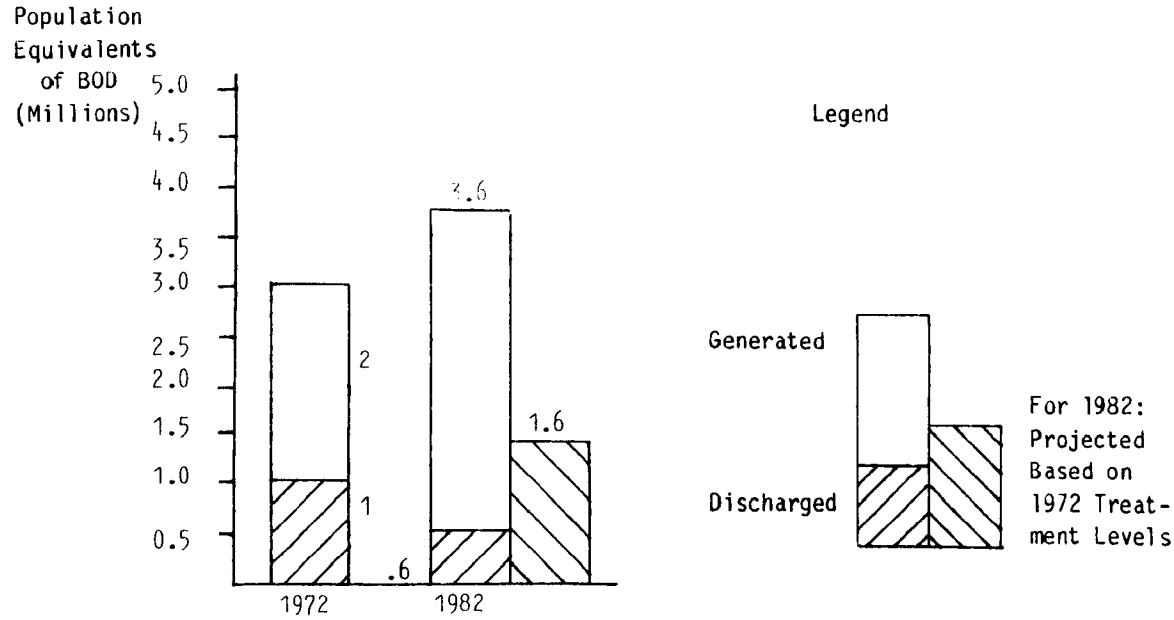
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance*

a.

	1972**	1982 Interim Permits[2]	1982 Final Permits
Facilities with Permits	93	14	60
Facilities Meeting 1982 Permit Requirements+[1]	9	8	30
Percentage of Facilities for Which Requirements Being Met	9.7%	57.1%	50%
Percentage of Flow For Which Requirements Met+	20.1%	61.9%	64.5%
Facilities Needing Upgrading	60	14	12

Total Permits in Effect in 1982: 898

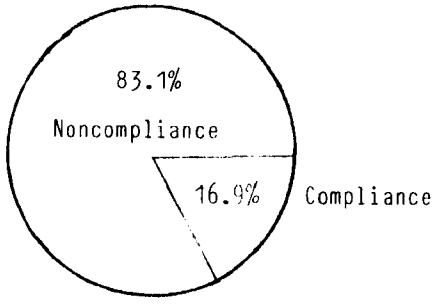
+Includes "No-Discharge" Facilities

*Includes those facilities defined by state and EPA as "Major"

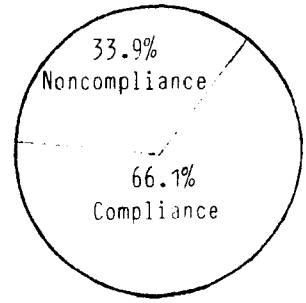
**Data provided is for 1977.

b. Significant Municipal Facility* Compliance: 1972** vs. 1982[3]
By Percentage

1972:**



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities*

	1972**	1982 Interim Permits[2]	1982 Final Permits
Facilities with Permits	73	0	69
Facilities Meeting 1982 Permit Requirements+	15	---	39
Percentage of Facilities for Which Requirements Being Met	20.6%	---	56.5%
Percentage of Flow for Which Requirements Met+	75.0%	---	94.9%

Total Permits in Effect in 1982: 913

+Includes "No-Discharge" Facilities

*Includes those facilities defined by State and EPA as "Major"

**Data provided is for 1977.

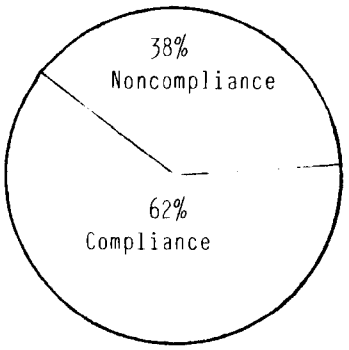
1 For Tables A 3(a) and B(a): "Facilities Meeting 1982 Permit Requirements" is defined as those facilities that were in total compliance for the entire year.

2 Interim permits are not issued, and have not been since before July 1, 1977. For purposes of Tables in A 3(a) and B(a) we are using Consent Orders and Interim Effluent Letters which have interim limits.

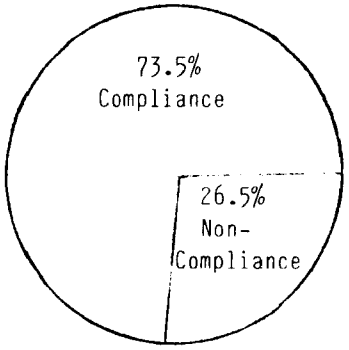
3 For Pie Charts A 3(b) and B(b), "Compliance" is defined as having no violations in any given month. Noncompliance is defined as having any permit violation in a given month. The % compliance for any given year is defined as a ratio of months in compliance vs. months in which permit was in effect.

b. Significant Non-Municipal Facility* Compliance: 1972** vs. 1982[3]
By Percentage

1972:



1982:



*Includes those facilities defined by State and EPA as "Major"

**Data provided is for 1977

IV. NON-POINT SOURCE POLLUTION CONTROL

State Secretary of Commerce and Resources formed a Nonpoint Source Pollution Committee chaired by the Director of Soil and Water Conservation Commission with members from several concerned State and Federal agencies. Due to paucity of water quality data supporting definition of NPS problems, a non-regulatory approach was recommended. The State Water Quality Agency, the State Water Control Board developed Best Management Practices Handbooks containing standards and specifications for five of the six NPS categories* and a BMP Management Handbook designating management agencies to implement and report on the BMP program. The seven inter- and intrastate designated areawide planning agencies used a similar approach. An extensive public education and involvement program was launched at the same time, with sub-committees from the State 208 Policy Advisory Committee participating in development of the management strategies included in the BMP Management Handbook.

A locally-initiated citizen's program to monitor streams and land-disturbing activities was supported by 208 funds and will be expanded to encompass more areas of the State where response is positive.

The U.S. Soil Conservation Service prepared an assessment of potential nonpoint source pollution from agricultural activities and prepared detailed reports for 26 priority watersheds in the non-designated State Planning Area. The State Division of Forestry and the State Water Control Board conducted a similar assessment for other categories of nonpoint source pollution.

Special nonpoint source watershed studies were conducted on two major lakes and in three major river basins. The State 208 program also is supporting a Rural Clean Water Program project as well as several water quality related Agricultural Conservation Practice projects. Nonpoint source studies will be continued in the Chowan and Roanoke River Basins as well as tributaries to the Chesapeake Bay.

* Handbooks were produced for Urban Runoff, Agriculture, Groundwater, Hydrologic Modifications, and Forestry. A draft handbook for Mining was prepared but never published, being superseded by new surface mining legislation at Federal and State levels.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/W	M/W	I/L	M/L	M/W	I/L	I/L	N/A
Primary Pollutants	SS,T, P, M	C, Nut. OxDe, SS	Nut. SS	pH M, T	SS, T	SS, T	pH, O	N/A

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Virginia utilizes many approaches to achieve compliance. Six regional offices render technical assistance, and have day-to-day contact with permittees. Phone calls, meetings and letters at this level are used to achieve compliance. Headquarter's Bureau of Enforcement uses letters, Directives, Consent Orders, hearings for issuance of Special Orders, Emergency Special Orders, and recommends to the 7-member citizen's Board legal action for violations. In 1982 four Consent Orders were issued, three municipal and one industrial, and the Board authorized legal action for eight non-municipal permittees. The Board also approved five settlements of civil cases in 1982 amounting to $51,000. We are now using a priority ranking system for violators. Permittees who are in significant noncompliance (This definition is different from EPA's and ASIWPCA's) are ranked based on size of discharge, toxicity of discharge, environmental harm, unreliability, and public interest.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

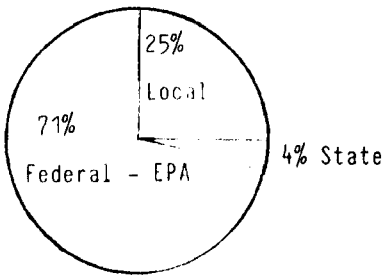
Total Number of Facilities:	66
Number of Pre-Administrative Actions:	48
Number of Administrative Actions:	5
Number of Judicial Actions:	4

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,402 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 998,566,830 Million
Other Federal:	$ 0*
State:	$ 52,078,160
Local Match:	$ 351,476,144
Other Local:	$ 0*

*Information not available

C. Program Activities

The Virginia State Water Control Board was established in 1946. Most major programs existed before passage of the Clean Water Act of 1972. But significant program changes were made in response to the Act.

1. In 1972, the Division of Water Resources, formerly an independent agency was merged with the Board, bringing together water quality and water quantity planning.

2. In 1972, six Regional Offices were established. About half of the Agency's personnel is assigned to these six regions, half to Headquarters. (NOTE: In 1982, 376 positions were authorized vs. 333 in 1972; however, only 319 positions are currently filled due to a State government hiring freeze and budget constraints. The budget has grown from $1.09 M in FY 1972 to $10.02 M in 1982).

3. In January 1975, the Agency assumed full delegation of the federal NPDES permit program. The SWCB has issued state discharge permits since 1946, and continues to issue state permits along with the federal permits.

Other programs added (or greatly expanded) since 1972:

1. Nonpoint Source Abatement Program 1974
2. Clean Lakes Program 1972
3. Chesapeake Bay Program 1978
4. Spill Prevention Control and Counter Measure Program 1973
5. Toxic Monitoring Program 1979
6. Dam Safety Inspection 1977
7. Flood Insurance 1977
8. Water Supply Planning 1977

To highlight some major programs:

NPDES Permits - 898 municipal and 913 industrial permits are in force; 61,566 kg/day of BOD_5 were discharged to Virginia's water in calendar 1981. This total has been halved since 1976.

No-Discharge Animal Waste Program - 935 certificates are in effect. This program prevents a wasteload equivalent to 1.2 million people from reaching State waters.

Monitoring Program - 314 water quality stations are sampled monthly. Last year we collected 17,127 water samples and performed 162,660 chemical analyses on them. In addition 161 stations are sampled semi-annually for benthic invertebrate organisms.

Pollutioin Response - In the last two years we investigated 1,661 pollution complaints; one-third were oil spills; 3.5 million gallons of oil were spilled, necessitating 424 clean-up operations. About one million gallons reached State waters. During the same two-year period, 205 fish kills were investigated; about one-quarter were caused by pollution.

Clean Lakes - 161 publicly owned lakes were studied and classified as to trophic state. Several are being considered for EPA lake restoration grants.

Chesapeake Bay Program - A six-year $27 million study of the Bay is nearing completion. Recommendations for long-range management of the Bay are currently being formulated.

VI. SITE-SPECIFIC SUCCESSES

A. Occoquan Reservoir

The Occoquan Reservoir was created in the 1950's to supply drinking water to northern Virginia. With improvements to the dam, the lake now holds 11 billion gallons of water and serves a population of 600,000. In the 1960's, increasing development threatened the lake, with increased runoff and increased discharge of sewage. Algae blooms were common, necessitating frequent treatment with copper sulfate. A moratorium on growth was imposed while an intensive study determined the extent of the problem and recommended solutions.

The solution was a new advanced wastewater treatment plant, which consolidated flows from eleven existing plants into one regional facility operated by the Upper Occoquan Sewage Authority. The new plant, which began operation in 1978, treats water to virtually drinking water standards before discharge to the reservoir. Eutrophic conditions have improved, but non-point source problems in the 590 mi^2 basin remain, although Best Management Practices are being implemented.

B. Roanoke River and Smith Mountain Lake

The Roanoke urban area is located 30 miles upstream from the dam of Smith Mountain Lake, a 20,000 acre multi-use reservoir. The lake, completed in 1965, has a 1,024 mi^2 watershed drained by two rivers, the Roanoke and the Blackwater. The Roanoke River arm of the lake, draining the urban area, showed symptoms of eutrophication by the late 1960's. This condition was attributed to sewage and urban runoff from the Roanoke area.

Beginning in 1971, "pickle liquor", a waste ferric chloride solution from the steel industry, was used at the Roanoke STP for phosphorus removal. Conditions began to improve in the lake, which studies had shown to be phosphorus-limited.

In 1977, a new regional advanced wastewater treatment plant began operation. This plant, with biological nitrification, chemical-physical operations and filtration, has consistently produced a high-quality effluent. The plant also has flow equalization basins to hold and treat some storm runoff from combined sewers and severe infiltration/inflow problems. The result has been a dramatic reduction in loadings of nutrients. BOD and solids, and a great improvement in water quality.

Non-point sources in the lake's watershed continue to be a concern. A major EPA-funded "208" study of the Roanoke area is nearing completion.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Toxic pollutants. Almost 300 miles of stream have been under fishing restrictions due to toxic substances. Kepone contamination of the James estuary attracted national attention. Two other rivers, the NF Holston and South River-SF Shenandaoh are contaminated with mercury.

Water Supply. Ensuring adequate water supplies for the State's growing urban areas in northern and southeastern Virginia has been of increasing concern. Southeastern Virginia has been designated a Groundwater Management Area.

Additional Special Concerns - protection of the Chesapeake Bay; quality of interstate waters, especially in the Chowan Basin; reclamation of orphaned mined lands; regional wastewater treatment planning; and shellfish condemnation and marine sanitation devices.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- _____ - Municipal wastewater plant operation, maintenance, and rehabilitation.
- _____ - Pollution arising from abandoned industrial and/or mining facilities.

Toxic pollutant monitoring. The agency is developing a program to monitor complex effluents for both organic and inorganic toxic substances. Program will use both bioassays and high technology chemistry, such as GC/MS.

Comprehensive Water Supply Planning. Agency has embarked on a five-year effort to provide a comprehensive water supply plan for all of Virginia, under a special directive from the General Assembly.

Nonpoint Source Control. Virginia has a voluntary Best Management Practices program, has produced six widely distributed handbooks on BMP's, has had up to seven areawide "208" agencies. The SWCB is working closely with agricultural interests on control of rural NPS, and conducted several studies on subbasins and single land uses. However, a comprehensive statewide assessment of the magniture of the problem remains to be done.

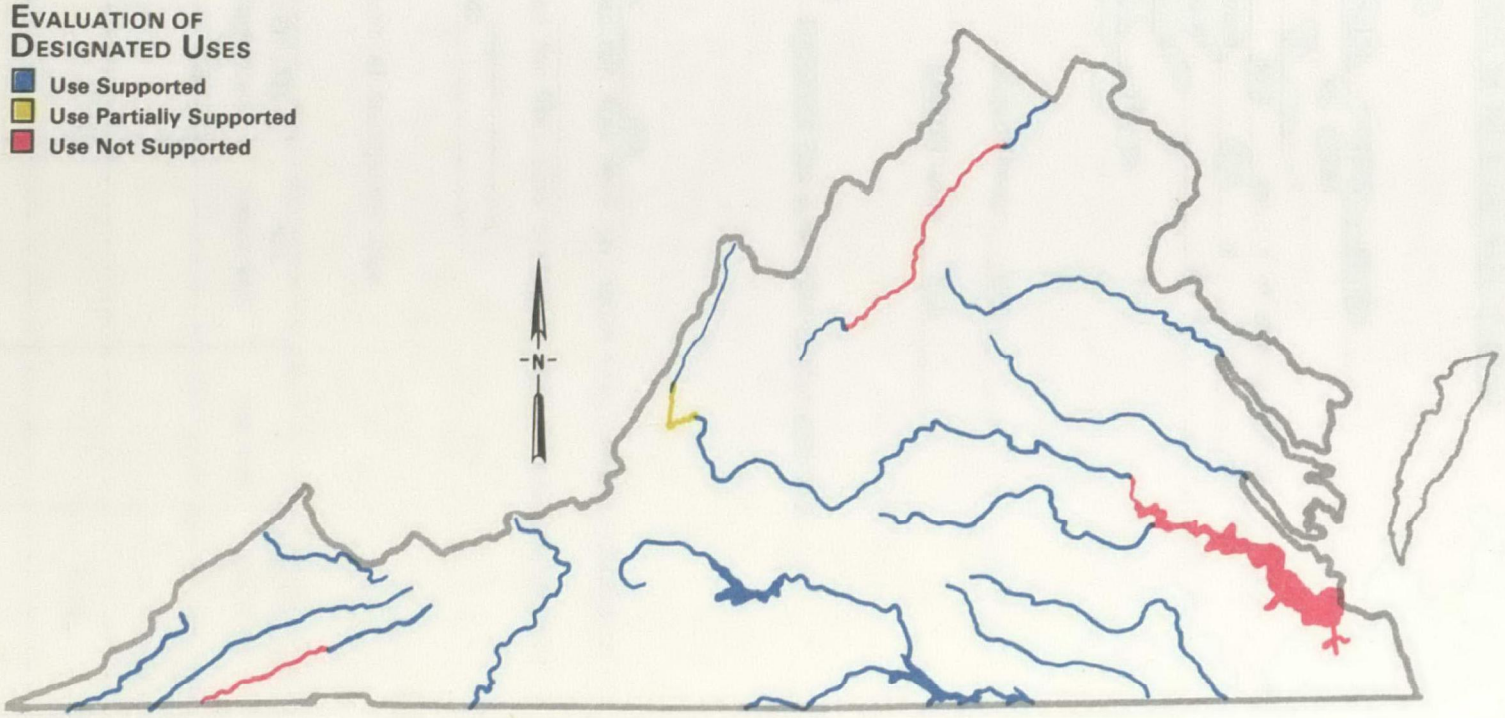
AGENCY PREPARING REPORT: Virginia State Water Control Board

P.O. Box 11143, Richmond, VA 23230

CONTACT PERSON & PHONE #: Ronald A. Gregory 804/257-0073

DATE: August 12, 1983

VIRGINIA
1982



State of Virgin Islands*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 75,151 1980 96,569
State Surface Area 135 sq. miles
# of River Systems/Basins 4
# of River and Stream Miles N/A mi.; # of Border Miles* N/A mi.
# of Lakes and Ponds and Acreage N/A / _____ ac.
# of Marsh or Wetlands ac./sq.mi. _____ ac. or _____ sq. mi.
# of Coast Miles 172.8 mi.
# of Estuary sq. mi. 9.5 sq. mi.

*Border Rivers:

Name/Mileage N/A Name/Mileage N/A

Name/Mileage N/A Name/Mileage N/A

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

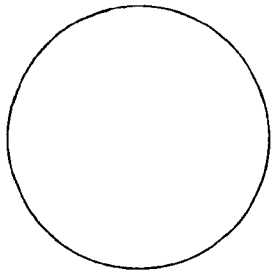
1. a. Miles Assessed: N/A
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972					mi.
					100%
1982					mi.
					100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	_____
Unknown:	_____	_____

B. Lakes and Reservoirs

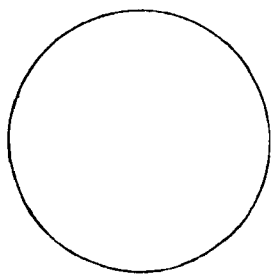
1. a. Acres Assessed: _____
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: _____
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: _____
   d. Acres Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972					ac.
					100%
1982					ac.
					100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	_____	_____
Acres Degraded:	_____	_____
Acres Maintained:	_____	_____
Unknown:	_____	_____

C. Estuaries and/or Oceans

		Estuaries	Oceans
1. a.	Square Miles/Miles Assessed:	5.5	172.8
b.	Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	9.5	161.8
c.	Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	0	11.0
d.	Sq. Mi./Miles Monitored:	5.5	172.8

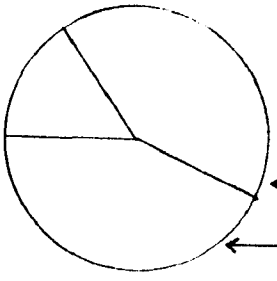
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972					
	%				100%
1982	166.8 mi.	1.0	2.0	3.4	172.8 mi.
	96.5 %	0.3 %	1.2 %	2.0 %	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

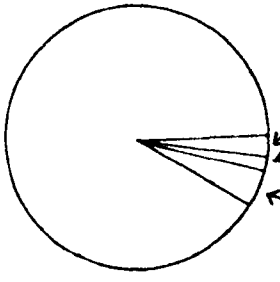
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:		
Sq.Mi.Degraded:	1.5	
Sq.Mi.Maintained:	4.0	
Unknown:	4.0	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	2.9	
Miles Degraded:	1.0	
Miles Maintained:	162.9	
Unknown:	6.0	

D. Great Lakes

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

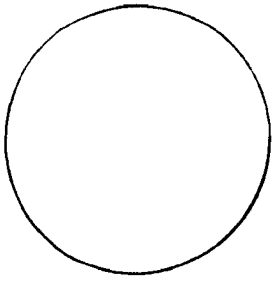
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

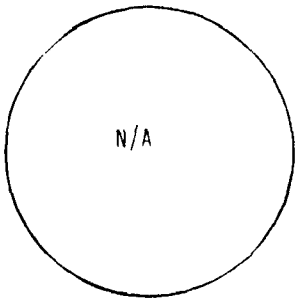


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

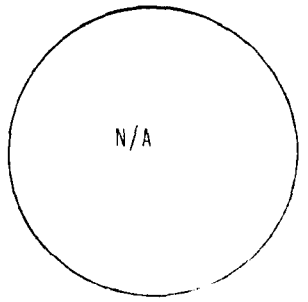
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

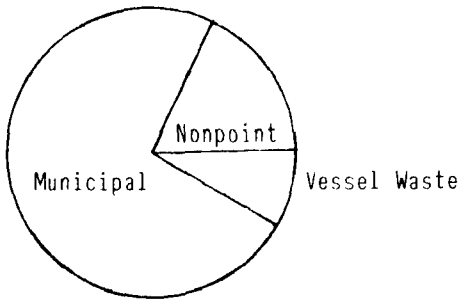
a. Streams and Rivers



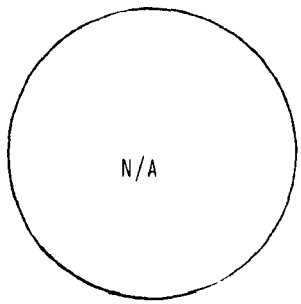
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X				X		Coli
Industrial				X	X				Turb
Non-Point							X		
Other (inc. natural)									

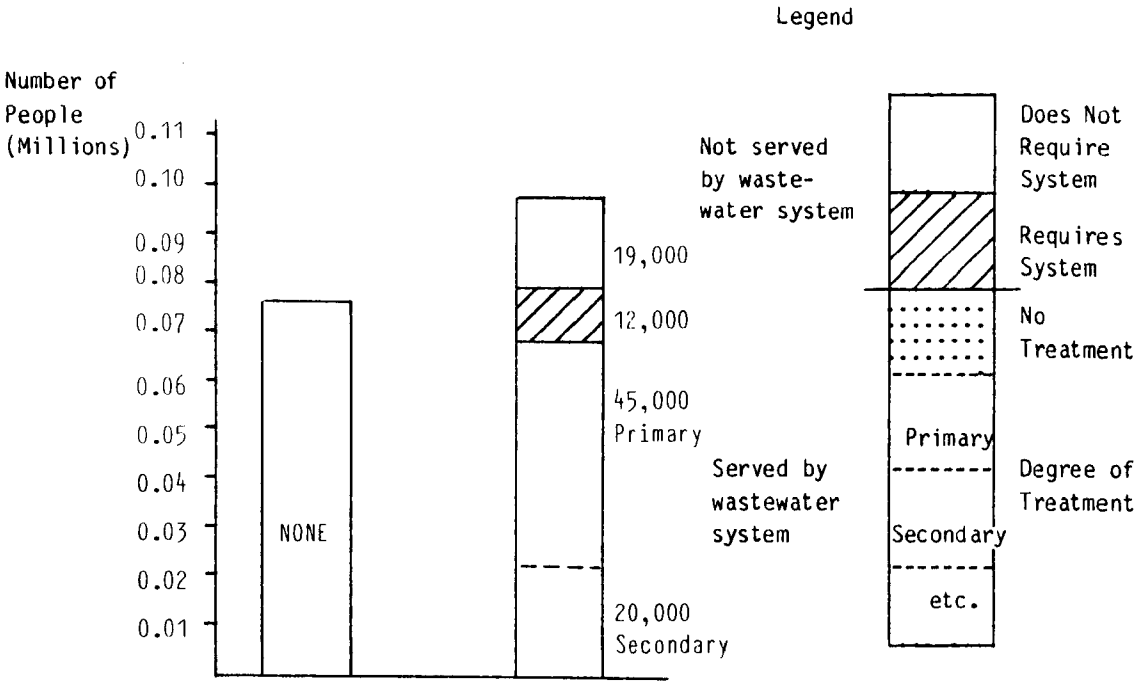
*Number of Stream/River Miles Affected by Toxics: N/A
*Number of Lake/Reservoir Acres Affected by Toxics: N/A
*Number of Estuary Square Miles Affected by Toxics: None
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

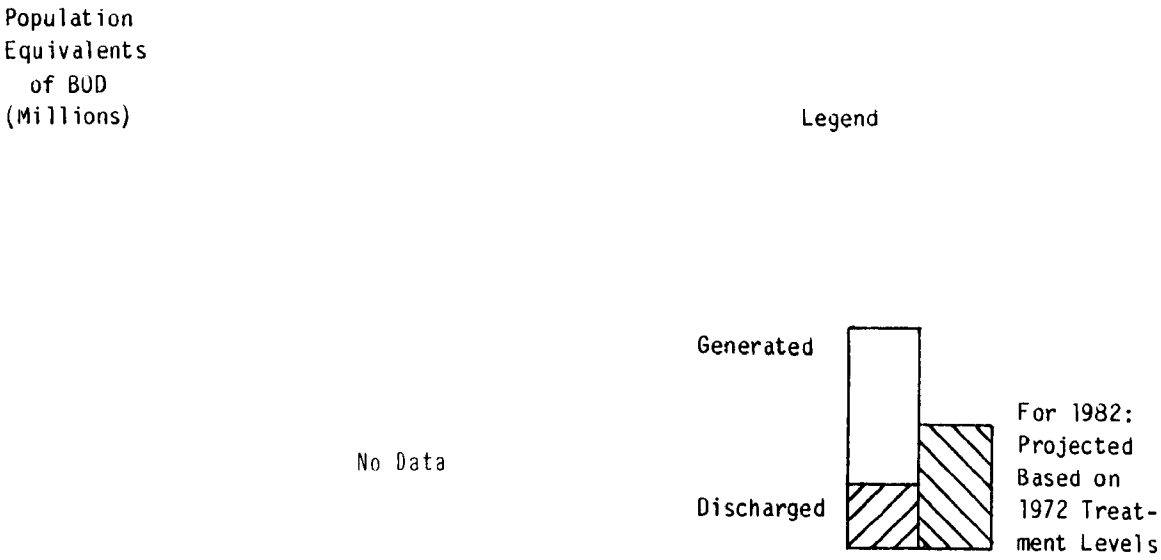
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

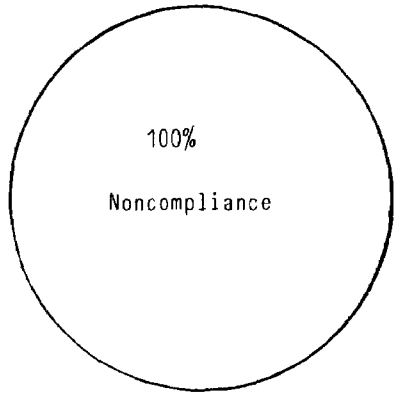
a.

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	0	0	10	
Facilities Meeting 1982 Permit Requirements+	0	0	2	Total Permits in Effect in 1982 10
Percentage of Facilities for Which Requirements Being Met	0	0	20	
Percentage of Flow For Which Requirements Met+	0	0	10	
Facilities Needing Upgrading	0	0	10	

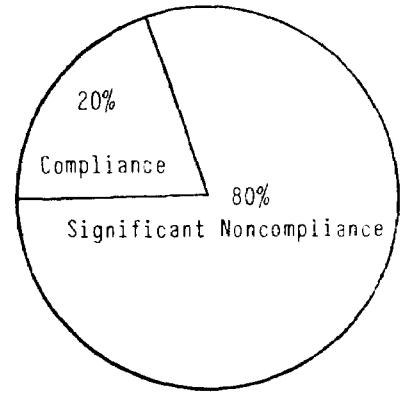
+Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

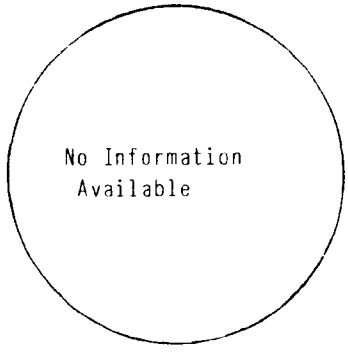
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits	
Facilities with Permits	4	2	17	Total Permits in Effect in 1982 17
Facilities Meeting 1982 Permit Requirements+	N/A	N/A	15	
Percentage of Facilities for Which Requirements Being Met	N/A	N/A	88.2	
Percentage of Flow for Which Requirements Met+	N/A	N/A	90 %	

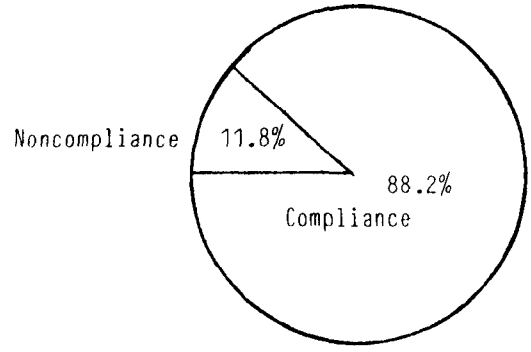
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The U.S.V.I. Nonpoint Source Pollution Control Program (NSPC) was initiated in July 1981. The program was 100% federally funded (USEPA). The NSPC program's goal was to identify the territory's nonpoint source priority polluters and organize plans to limit the contributions of these sources. The three major contributors are groundwater contaminants, vessel waste, and sediments from construction site activities.

Groundwater is a vital supplement to the V.I. potable water supply, therefore, preventing any further degradation and improving its quality became a priority. Groundwater can be contaminated from seawater intrusion, hydrocarbons, industrial solvents, nitrates, sewage and sediment.

Vessel Waste was found to be a significant contributing factor especially on embayments that are shallow, enclosed or poorly flushed. Installation of marine sanitary devices and determination of assimilative capacity of highly suspect bays will alleviate the impact of this problem.

Sediment Production causes severe problems especially due to construction taking place in the last two decades. It fills culverts and natural drainage areas, and causes flooding, which in turn discolors coastal waters and affect marine ecology. Implementation of Best Management Practices at construction sites can reduce this problem significantly.

Agencies assisting in NSPC endeavors, other than EPA, include: The U.S. Geological Survey; the V.I. Department of Public Works; the U.S. Soil Conservation Service; V.I. Coastal Zone Management; U.S. Coast Guard, and the V.I. Port Authority.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Vessel Waste	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	-	-	-	I/L	S/L	-	-	S/L
Primary Pollutants	-	-	-	C,M,Nut, Oxy Dem SS	C,Nut Oxy Dem SS,T	-	-	C,Nut, Oxy Dem. SS,T

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

1. Permit Issuance
2. Compliance Evaluation and Sampling Inspection
3. Notice of Violations (letters)
4. Quarterly Non-compliance Reports
5. Court Action

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

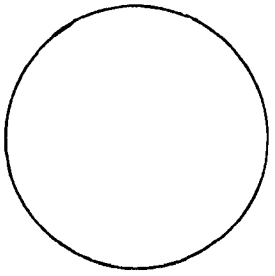
Total Number of Facilities:	6
Number of Pre-Administrative Actions:	
Number of Administrative Actions:	
Number of Judicial Actions:	6

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 18,377,005.00 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 18,327,005 Million
Other Federal:	$
State:	$
Local Match:	$
Other Local:	$

C. Program Activities

I. The V.I. DCCA/NRM is charged with responsibility of providing for the prevention, abatement, and control of new or existing water pollution. To execute this mandate, the DCCA has developed a Water Pollution Control Program whose activities include Water Quality Management Planning, Point Source, and Ambient Monitoring, Permit Issuance, Enforcement, Training, and Emergency Response.

Water Quality Management Planning:

Brings together information about water resources in the islands into one report where it can be used as a source for making decisions for the future.

II. Point Source Program activities involves the collection of monitoring data for verification of compliance with effluent limitations specified in the discharge permit.

III. Ambient Monitoring Activities is comprised of collecting, analyzing and interpreting the results of marine samples for chemical, physical and biological information, to define water quality trends and determine compliance with V.I. Water Quality Standards.

IV. Enforcement Activities employs water pollution control and point source permit issuance as a means of limiting and controlling proposed or existing discharges.

V. Personnel Training is conducted whenever an EPA approved course is offered relating to an area where DCCA agency necessitates improved expertise.

VI. Internal informal training sessions are administered when appropriate. System audits assess how efficiently a particular area of operation functions including the performance level of the individuals involved in the methodology.

VI. SITE-SPECIFIC SUCCESSES

The Charlotte Amalie harbor in St. Thomas has been adversely affected by conventional pollutant sources. Raw sewage was discharged into the harbor up until the early months of 1973. This activity contributed significantly to high fecal coliform levels (600/100 ml), unsuitable dissolved oxygen levels (5.7-6.0 mg/l) and decreased water clarity.

Water quality in the Christiansted harbor suffered the same type of degradation due to conventional pollutants.

Under the Water Pollution Control Program, raw sewage discharged into the harbors, was eliminated by construction of primary wastewater treatment plants and other sewerage system facilities. As a result, water quality data indicate conditions in the Charlotte Amalie harbor have improved over the last few years. Fecal coliform levels have decreased far below (50/100 ml), dissolved oxygen levels are now up beyond 6.5 mg/l and water clarity has improved.

In the Christiansted harbor, fecal coliform levels have fallen dramatically and in stream dissolved oxygen levels have risen. Both successes can be attributed to the USEPA Construction Grant Program and implementation of the provisions of the Federal Water Pollution Control Act.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The Division of Natural Resources Management, Water Pollution Control Program, is especially concerned with nutrient overloading and turbidity arising from urban runoff, municipal discharges, and unsound development practices, in certain poorly flushed areas (Mangrove Lagoon, Cowpet Bay, Water Bay). Water quality and biological conditions in these locations have deteriorated, in some cases, to the point where they are impairing the highest designated use. Another important concern has been for DCCA/NRM to use the water quality data to develop a data base which will be useful on assessing future monitoring strategies.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- ____ - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- ____ - Pollution arising from abandoned industrial and/or mining facilities.

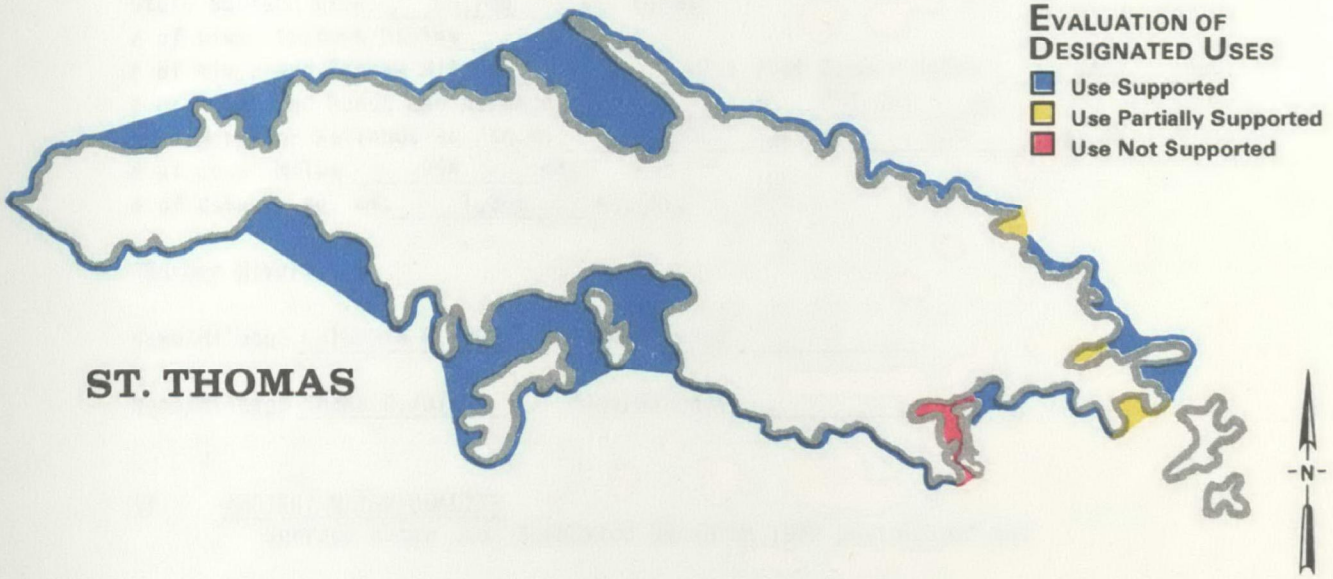
AGENCY PREPARING REPORT: Department of Conservation & Cultural Affairs

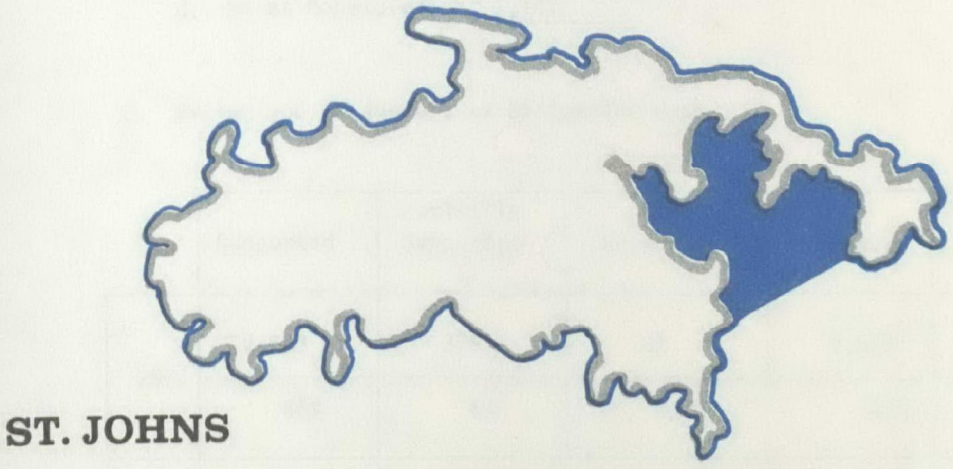
Division of Natural Resources Management

CONTACT PERSON & PHONE #: Mr. Austin L. Moorehead (809) 773-0565

DATE: 9/19/83

VIRGIN ISLANDS
1982





State of Washington*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 3.4 million 1980 4.1 million
State Surface Area 66,786 sq. miles
# of River Systems/Basins 62
# of River and Stream Miles 40,492 mi.; # of Border Miles* 346 mi.
# of Lakes and Ponds and Acreage 7,958 / 613,582 ac.
# of Marsh or Wetlands ac./sq.mi. 220,000 ac. or 344 sq. mi.
# of Coast Miles 994 mi.
# of Estuary sq. mi. 1,361 sq. mi.

*Border Rivers:

Name/Mileage Columbia R./309 Name/Mileage _____

Name/Mileage Snake R./37 Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

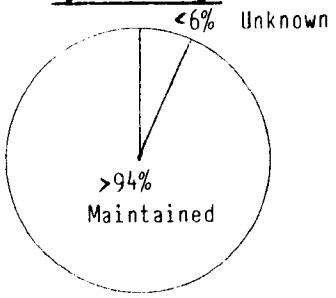
1. a. Miles Assessed: 6,309
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 44
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 984
   d. Miles Monitored: 2,741

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2,929 mi.	376	31	2,973	6,309 mi.
	46%	6%	0.5%	47%	100%
1982	4,913 mi.	874	165	358	6,309 mi.
	78%	14%	3%	6%	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	--	--
Miles Degraded:	--	--
Miles Maintained:	> 5,930	
Unknown:	< 379	

B. Lakes and Reservoirs

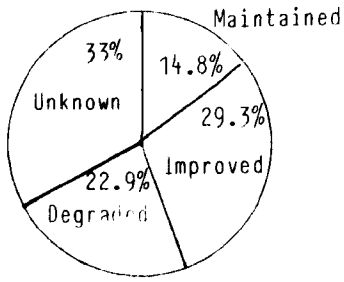
1. a. Acres Assessed: 41,477
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 0
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 12,931

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	13,480 ac.	16,500	10,738	759	41,477 ac.
	32.5%	39.8%	25.9%	1.8%	100%
1982	19,857 ac.	17,893	3,727	--	41,477 ac.
	47.9%	43.1%	9.0%	--	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage



	Within Category	Change in Category
Acres Improved:	5,603	6,552
Acres Degraded:	8,411	1,096
Acres Maintained:	6,125	
Unknown:	13,690	

C. Estuaries and/or Oceans

		Estuaries	Oceans
1.	a. Square Miles/Miles Assessed:	1,361	/ 964
	b. Sq. Mi./Miles Designated for Uses More Stringent than Fishable/Swimmable:	0	/ 0
	c. Sq. Mi./Miles Designated for Uses Less Stringent than Fishable/Swimmable:	3.6	/ 0
	d. Sq. Mi./Miles Monitored:	1,254	/ 837

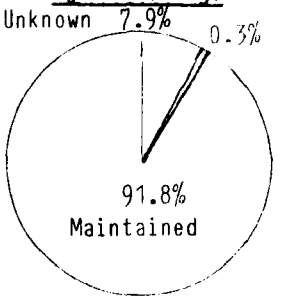
2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Assessed
1972	1161.1/807	88.2/0	4.7/0	107/157	1361/964
	85.3/83.7%	6.5/0	0.3/0	7.9/16.2	100%
1982	1162.5/807	91.5/0	0/0	107/157	1361/964
	85.4/83.7%	6.7/0	0/0	7.9/16.2	100%

3. Changes In and Within Use Support Between 1972 and 1982

a. Estuaries:

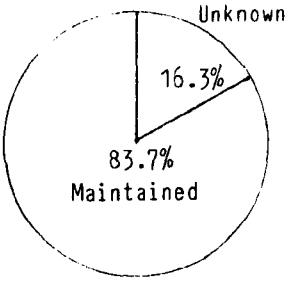
By Percentage



	Within Category	Change in Category
Sq.Mi.Improved:	0	4.7
Sq.Mi.Degraded:	0	0
Sq.Mi.Maintained:	1,249.3	
Unknown:	107	

b. Oceans

By Percentage



	Within Category	Change in Category
Miles Improved:	0	0
Miles Degraded:	0	0
Miles Maintained:	807	
Unknown:	157	

D. Great Lakes N/A

1. a. Miles Assessed: _____

   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: _____

   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: _____

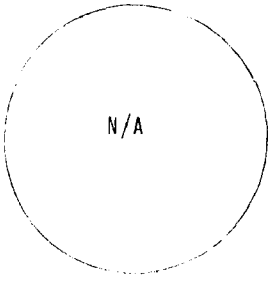
   d. Miles Monitored: _____

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	mi.				mi.
	%				100%
1982	mi.				mi.
	%				100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage

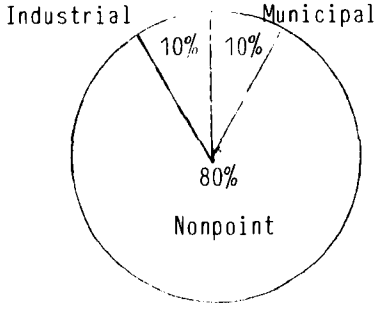


	Within Category	Change in Category
Miles Improved:	_____	_____
Miles Degraded:	_____	_____
Miles Maintained:	_____	
Unknown:	_____	

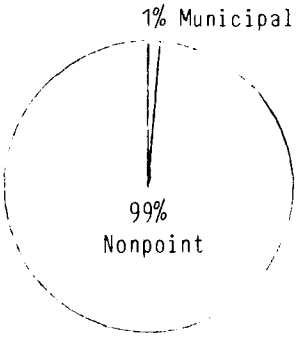
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

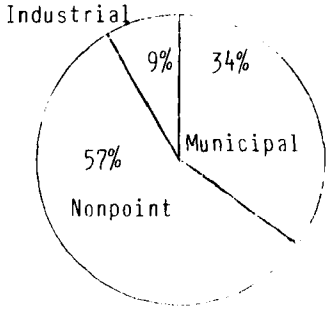
a. Streams and Rivers



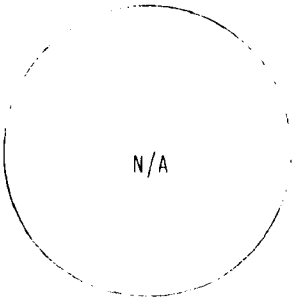
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			NH_3 Cl-2			Nut., Coli.
Industrial	X	X				X			D.O., Toxics
Non-Point	X		X		X	X	X		Temp., Turb.
Other (inc. natural)									

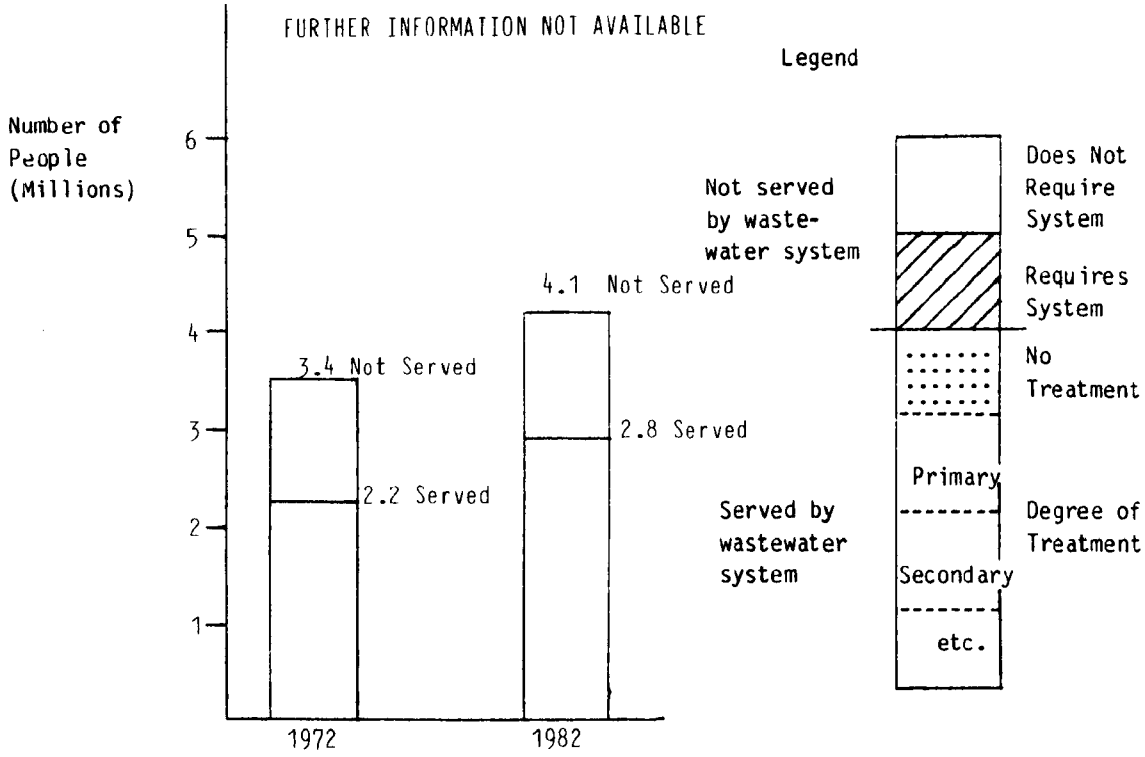
*Number of Stream/River Miles Affected by Toxics: Unknown
*Number of Lake/Reservoir Acres Affected by Toxics: Unknown
*Number of Estuary Square Miles Affected by Toxics: Unknown
*Number of Ocean or Great Lakes Mi. Affected by Toxics: Unknown

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

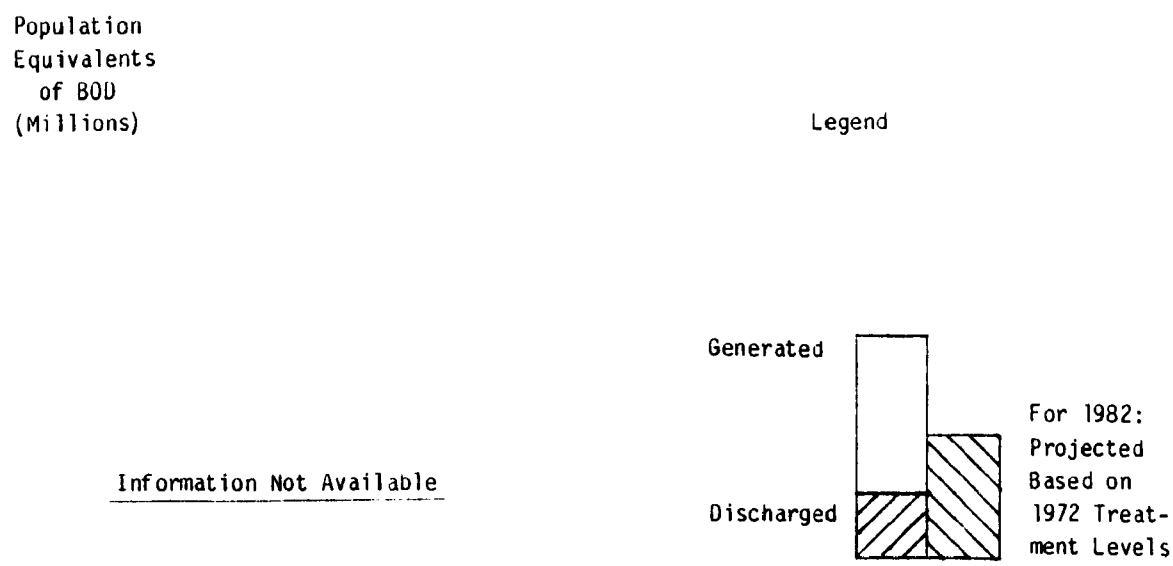
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

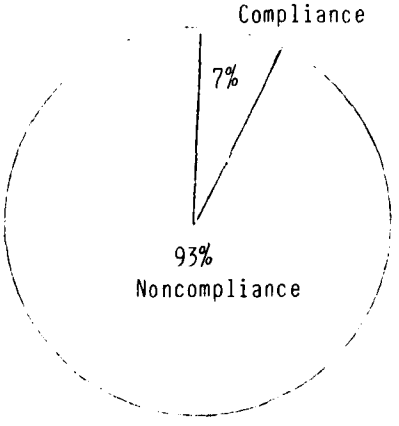
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	46	24*	21
Facilities Meeting 1982 Permit Requirements+	3	13	15
Percentage of Facilities for Which Requirements Being Met	7%	29%	33%
Percentage of Flow For Which Requirements Met+	9%	61%	23%
Facilities Needing Upgrading	43*	23*	4

Total Permits in Effect in 1982: 268

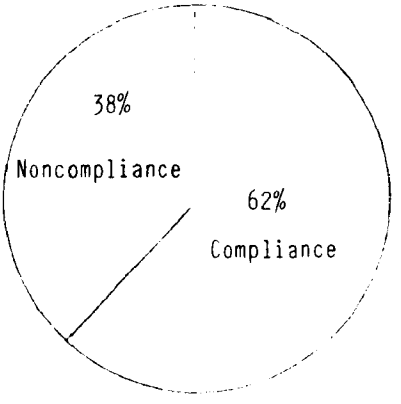
+Includes "No-Discharge" Facilities *Includes 17 301(h) applicants

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

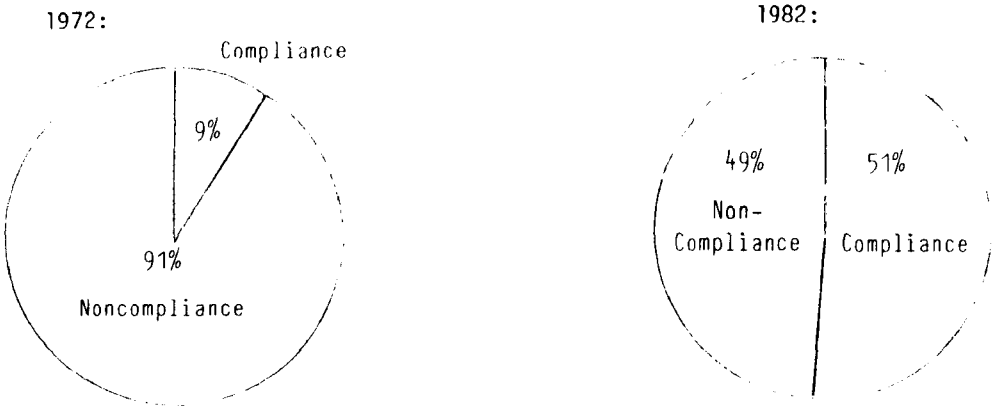
a. Significant Industrial & Other Significant Non-Municipal Facilities

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	46	40	3
Facilities Meeting 1982 Permit Requirements+	4	19	3
Percentage of Facilities for Which Requirements Being Met	9%	44%	7%
Percentage of Flow for Which Requirements Met+	49%**	15%	59%**

Total Permits in Effect in 1982: 541

+Includes "No-Discharge" Facilities **Includes one 650 mgd power plant

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage



IV. NON-POINT SOURCE POLLUTION CONTROL

A nonpoint source water quality problem assessment was prepared to provide a basis for the establishment of CWA Section 208 planning priorities. The assessment identified the following categories in priority order:

Agriculture	(Irrigated Agriculture Return flow)
	(Dryland Agriculture Soil Erosion and Sediment Control)
	(Dairy Waste Management)
Silviculture	(All Forest Management Activities)
On-Site Waste Disposal	
Urban Runoff	

Sixty-four (64) fresh and marine water segments of a total of 170 segments in the state experience water quality problems caused wholly or partially by nonpoint sources. In addition, seven (7) eutrophic lakes, 200 acres or larger in surface area, are known to be impacted by nonpoint sources. Although nonpoint source impacts on ground water have not been fully assessed, nonpoint sources appear to be significant contributors to problems in areas where assessments have been conducted.

CWA Section 208 planning addressed the above mentioned nonpoint sources with the following results: A voluntary program has been instituted to control irrigated and dryland agriculture nonpoint source pollution; enforcement action is undertaken only as a last resort. In the case of dairy waste, the NPDES permit program is employed only when an operator refuses to take corrective action to address identified problems.

A regulatory program has been adopted to control silvicultural nonpoint source water quality problems. Best management practices for silviculture activities have been incorporated into state administrative regulations.

On-site waste disposal is regulated at the state and local level. The 208 program furthered the coordination among the involved state and local agencies. A regulatory program based on general permits has been developed to deal with urban runoff problems. However, only communities willing to voluntarily enter into the General Permit Program will be affected in the initial phases of implementation.

Summary of nonpoint source assessments, plans, research, etc.

Statewide NPS Assessment	1		
Agriculture		On-Site	
208 Plans	6	Plans	8
PL 566 Projects	4		
RC & D Projects	3	Urban Runoff	
State Ref. 39 Projects	12	Assessment	1
Cooperative River Basin Studies	4	Plans	14
Model Implementation Project	1		
Research & Development Projects	3	Other	
		Sludge	1
Silviculture		Salmon Enhancement Project	1
Assessments	7	Toxic Pollutant Inventory	1
Plans	3		

In addition to the above, three designated planning agencies - Municipality of Metropolitan Seattle, Snohomish Metropolitan Corporation, and Clark County Regional Council of Governments - prepared areawide plans. Spokane County also prepared a plan for protection of the Spokane Valley-Rathdrum Praire Aquifer.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	S/M L	S/M W	I/L	M/L	I/L	I/L	M/I L
Primary Pollutants	c, nut. Temp.*,ss	nut., T, ss, Lo flo,C,Temp	T, ss Temp.	T, ss	T, ss	Dissolved Gas	Chloride	OxDe, M, P, pH

Temp = Temperature

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Point Sources: Civil penalties ($5000 per day max.) and administrative orders are issued, generally in response to willfull violations or failure to respond to pre-administrative actions. Resource damages are assessed for unlawful discharges causing fish kills, etc. Sewer bans are used to control POTW overloading. Bans are in effect in 16 cities. During 1982, 153 formal enforcement actions were taken and $66,750 in penalties were assessed.

Nonpoint Sources: Enforcement is generally handled by entities responsible for 208 plan implementation; counties or local health departments for on-site sewage disposal; Department of Natural Resources for silviculture; voluntary assistance by conservation districts and SCS for agriculture.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	88
Number of Pre-Administrative Actions:	24
Number of Administrative Actions:	10
Number of Judicial Actions:	9*

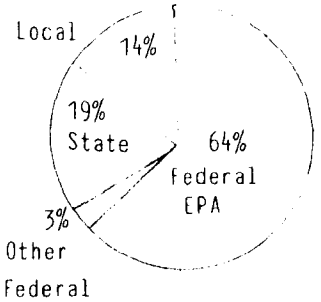
*Per instructions, civil penalties are listed as "judical" actions.

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 761 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 489 Million
Other Federal:	$ 20
State:	$ 142
Local Match:	$ 110
Other Local:	$

C. Program Activities

This section will be devoted to program activities related to toxics control and ground water quality protection because these are high priority activities that are not adequately addressed elsewhere in the report.

Toxics Control

Direct wastewater discharges of toxic pollutants are controlled through the NPDES permit program. EPA has continued development of effluent guidelines for discharge of toxic pollutants by various industrial categories. Guidelines have been promulgated for several categories and more will be promulgated in the near future. As effluent guidelines are finalized, WDOE is modifying and reissuing NPDES permits for affected industries to upgrade toxic discharge controls.

Since 1955, WDOE has regulated industrial discharges to municipal wastewater systems under the state waste discharge permit program. This pretreatment program recently has been modified in response to the federal requirements to better control toxic discharges to municipal wastewater systems.

To facilitate the toxics control program, WDOE increased its capability for analysis of organic chemicals through cooperative use of the EPA Manchester Laboratory. WDOE laboratory personnel have been stationed at Manchester to make use of that laboratory's equipment for organic chemical analysis.

Ground Water Quality Protection

An overall strategy for protection of ground water quality has not yet been clearly defined at either the national or state level. However, progress is being made on many necessary parts of an overall state strategy and work will continue to further integrate programs related to protection of ground water.

A revised regulation for on-site wastewater systems (i.e. septic tanks) has been adopted by the Washington Department of Social and Health Services (DSHS). WDOE has also developed a draft revised regulation for larger on-site systems which complements the DSHS regulation.

As part of developing the Underground Injection Control (UIC) Program, new state legislation was enacted in 1983 which clarifies state authority to administer the federal program. The UIC Program is directed toward the state waste discharge permit program which regulates discharges to the land surface and to ground water.

Baseline information regarding ground water is being improved through an ongoing U.S. Geological Survey monitoring program and through integration of DSHS data on drinking water quality of untreated ground water sources with WDOE and EPA water quality data systems.

Other actions to protect ground water quality are an integral part of both the hazardous waste site cleanup program under Superfund, and the federal and state hazardous waste management program.

VI. SITE-SPECIFIC SUCCESSES

The history of state water pollution control grant programs in the State of Washington provides numerous site-specific successes. In 1972, voters approved a package of state general obligation bond issues that comprised a program called "Jobs Now/Washington's Future." Referendum 26 was a $225 million bond issue for pollution control facilities including municipal wastewater facilities, lake restoration, agricultural pollution control, and solid waste facilities. In 1980, voters again approved a package of general obligation bond issues. This package included Referendum 39 which provides $315 million for municipal wastewater facilities, $35 million for lake restoration, and $10 million for agricultural pollution control.

Municipal Wastewater Facilities

Through FY 1980, Referendum 26 funds were used to provide up to 15 percent matching grants for "201" projects. In FY 1981, remaining Referendum 26 funds were used to establish a separate state grant program for municipal wastewater facilities and state funding was discontinued for new projects which received "201" grants. Referendum 39 has been used exclusively for separate state grants.

The use of these state grant funds for municipal wastewater facilities construction over the past decade provides numerous success stories involving the correction of public health problems, water quality problems, etc. The shift in FY 1981 in the use of these funds also provided an early response to emergent municipal compliance problems and shrinking grant funds.

Lake Restoration

The Liberty Lake Restoration Project was initiated in March 1977 with a Phase I - Diagnostic Feasibility Study. The study was completed in December 1979 and recommended a plan involving diversion of the inlet stream around a marsh which contributed nutrients to the lake, dredging of nutrient laden bottom sediments, nutrient deactivation, and the development of a stormwater management plan for the Liberty Lake watershed. Although funded under the federal/state municipal grant program, an important part of the restoration involved the construction of a wastewater treatment facility and a sewer system around the lake to eliminate septic tank drainage. Implementation of the restoration plan was completed in 1982 and post-restoration monitoring is continuing. The first year of monitoring indicates that Liberty Lake water quality has improved from a eutrophic condition to a meso-oligotrophic state. Total cost of the entire project including Phase I was $2,718,347. The Washington Department of Ecology has provided $1,357,470 of the total cost, EPA $1,130,381, and the local sponsor (Liberty Lake Sewer District) $230,496.

Other lake restoration projects that have been completed, or are near completion, and show significant improvements in water quality include Vancouver Lake ($17,400,000), Medical Lake ($306,655), Wapato Lake ($1,936,744), Lake Fenwick ($418,092), and Lake Ballinger ($893,189).

Agricultural Pollution

Johnson Creek is a $13,450 acre watershed located in Whatcom County, Washington adjacent to the Canadian Border. Dairy farming is the main land use with more than 8000 dairy animals present. Johnson Creek, a tributary to the Sumas River and subsequently the Frazier River in Canada, is a valuable salmon spawning stream. Streams in the watershed had a history of poor water quality and numerous pollution complaints. Streams were clogged with organic debris and silt to a depth of three to five feet. The streams had excessive growths of aquatic weeds both in the waterway and along the banks. Prior to the project, winter rain saturated area soils preventing area dairy operators from disposing of dairy wastes on their fields due to high water tables and standing water.

The $140,000 ($69,700 Ref. 26) project resulted in clearing and dredging more than 47,000 feet of stream channel. The channel was dredged to a depth that exposed clean gravel. In addition, two subsurface drains totalling 12,700 feet were installed to relieve high water levels. This project, sponsored by Whatcom County Conservation District, has taken steps to prevent streambank erosion caused by dairy animals. The CD is working with county ASCS and SCS offices to establish trees along the stream and installing fences to keep dairy animals out of the streams.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Another chapter in Washington's Clean Water Story relates the progress made in cleaning up industrial discharges. The forest products industry is very important to the economy of the Northwest, and pulp and paper mills are a big part of the industry in Washington State. Pulp mills have spent more than $284 million for water pollution control. This occurred as a result of regulatory efforts and tax incentive programs.

Efforts to clean up the pulp mills started in 1962 with a "Puget Sound Conference" called by the Governor under the terms of the Federal Water Pollution Control Act. The conference involved Washington's Water Pollution Control Commission (now the Department of Ecology), the Federal Water Pollution Control Administration (now EPA), and state and local health agencies. All sources of waste discharge into Puget Sound were examined, but the pulp mills received the most publicity. The conference ended in 1967 and enforcement efforts began. During the conference, scientific studies were conducted to evaluate the impact of pulp and paper mill wastes on Puget Sound's valuable fisheries resources. Oysters, shellfish, and anadromous fish (salmon) were sampled and examined using state of the art techniques. These studies showed that the four largest sulfite mills on Puget Sound discharged sulfite waste liquor in concentrations damaging to fisheries resources and that bottom sludge from solids in the discharge contained toxic components harmful to fisheries resources.

As a result of the Puget Sound Conference, the four largest mills were required to design and construct facilities to remove 80 percent of spent sulfite liquor from mill effluent or limit (reduce) their discharges to a specified level by 1972. All mills were required to design and construct treatment facilities to remove all "settleable solids" from mill effluents prior to discharge by 1970. Six mills were required to dredge sludge beds from waterways to which they were discharged. All of these requirements were to be enforced under state law using the state's waste discharge permit authority.

There were, to be sure, many delays caused by legal challenges and some foot-dragging, but by 1975 some dramatic improvements in water quality could be seen.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

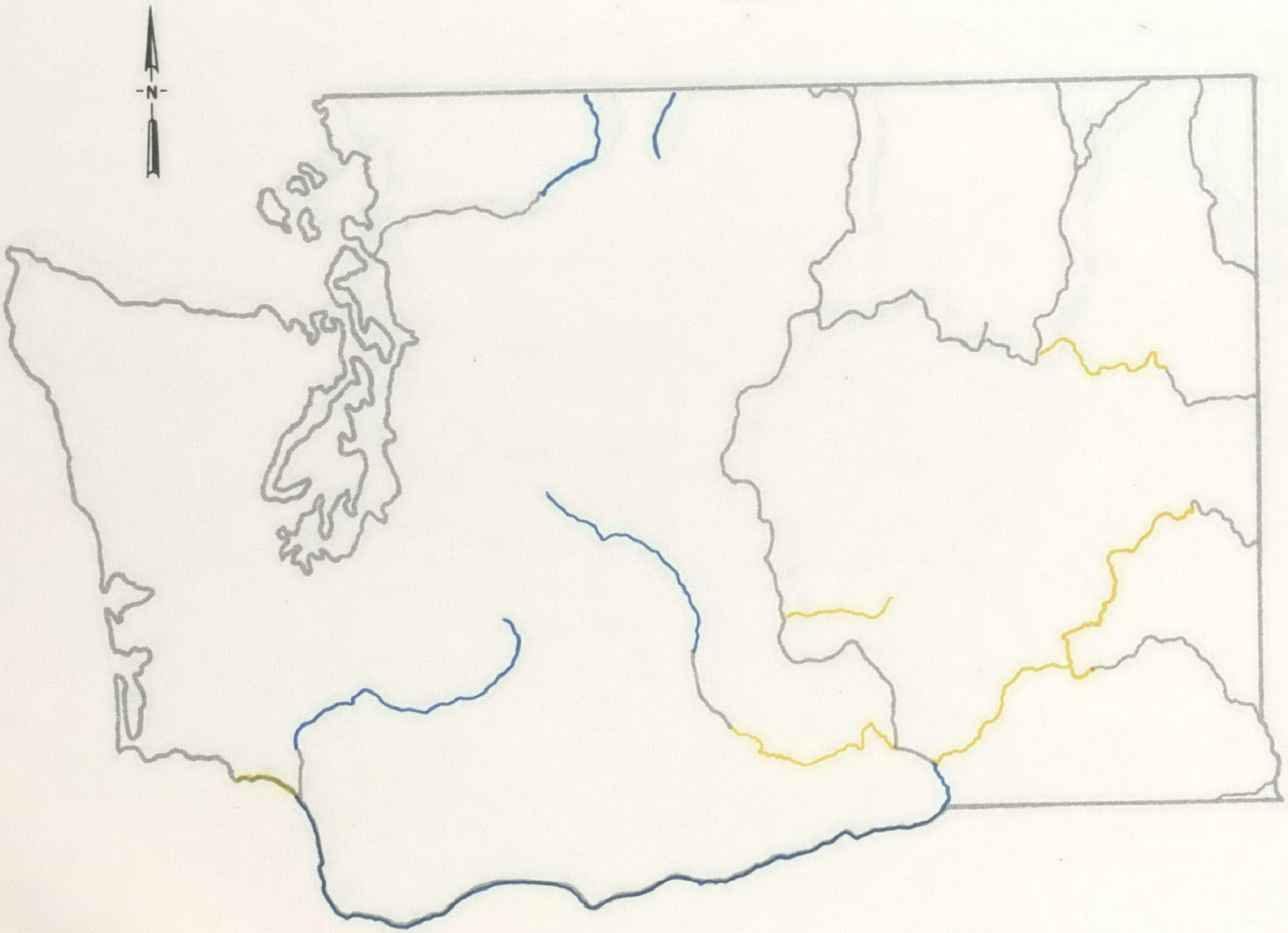
AGENCY PREPARING REPORT: Washington Department of Ecology

PV-11, Olympia, Washington 98504

CONTACT PERSON & PHONE #: Robert H. Monn - (206) 459-6059

DATE: October 27, 1983

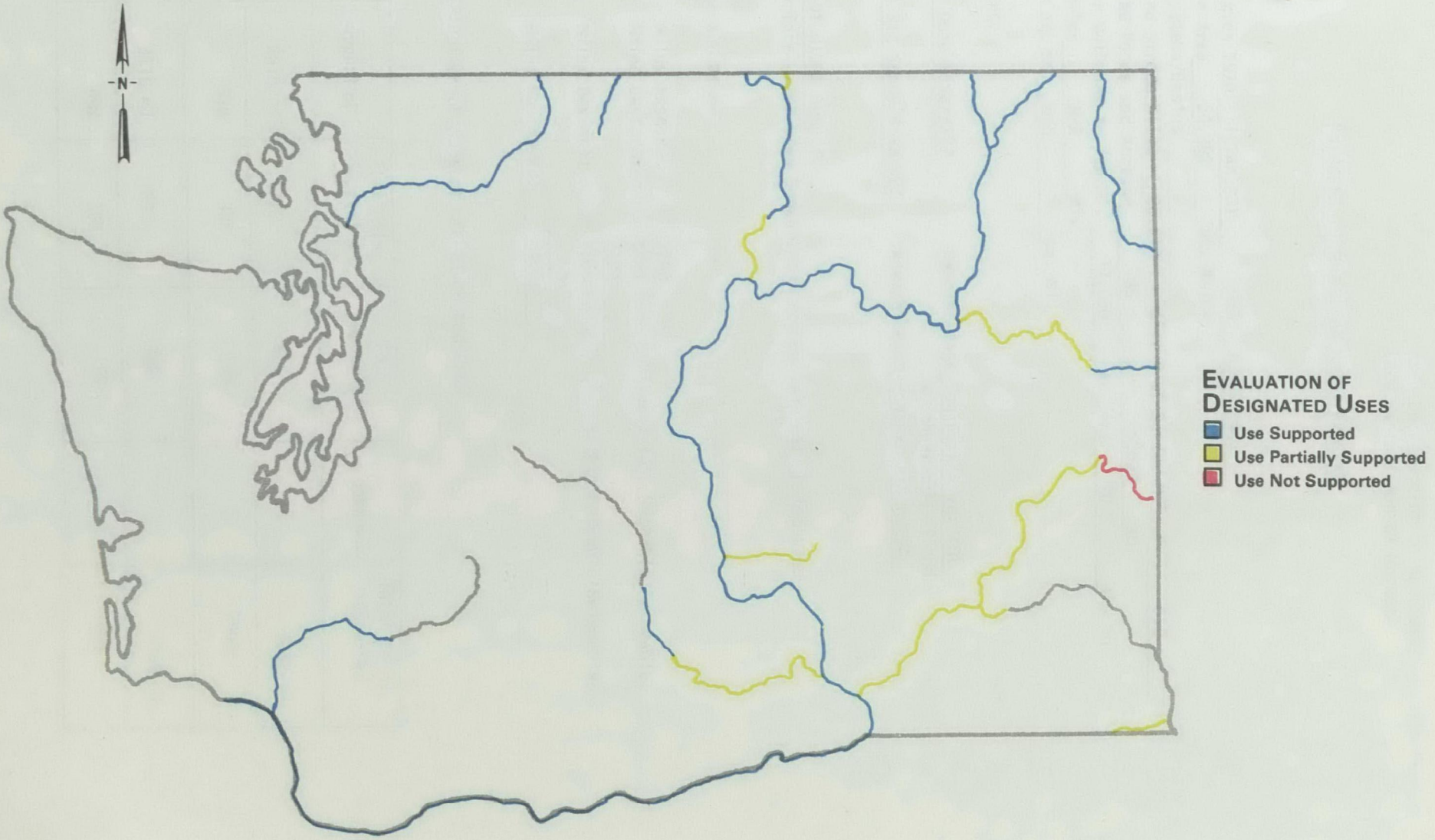
WASHINGTON
1972



EVALUATION OF DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported

WASHINGTON
1982



State of West Virginia*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 1,744,237 1980 1,949,644
State Surface Area 24,282 sq. miles
# of River Systems/Basins 7
# of River and Stream Miles 22,819 mi.; # of Border Miles* 619 mi.
# of Lakes and Ponds and Acreage 135 / 16,624 ac.
# of Marsh or Wetlands ac./sq.mi. 17,000 ac. or 40.3 sq. mi.
# of Coast Miles N/A mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Ohio River/277
Name/Mileage Tug Fork River/101
Name/Mileage Big Sandy River/27
Name/Mileage North Branch of Potomac River/214

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

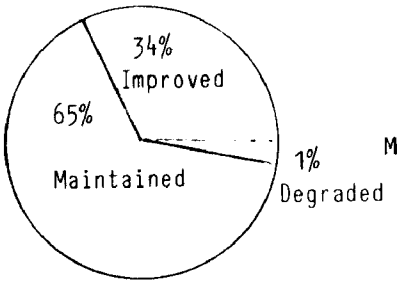
1. a. Miles Assessed: 5262
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 5190
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 450

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	2678 mi.	1772	812		5262 mi.
	51%	33%	16%		100%
1982	3116 mi.	1843	303		5262 mi.
	59%	36%	5%		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	919	891
Miles Degraded:	0	32
Miles Maintained:	3420	
Unknown:		

B. Lakes and Reservoirs

1. a. Acres Assessed: 16,158

b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 16,158

c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0

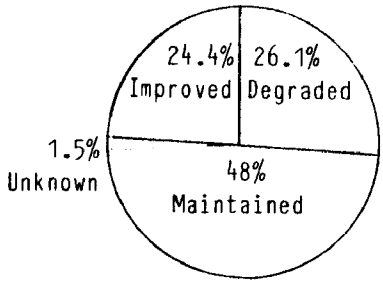
d. Acres Monitored: 14,425

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	1,520 ac.	9,152	2,930	0	13,602 ac.
	11.2	67.3	21.5	0	100%
1982	1,675 ac.	12,685	1,798	0	16,158 ac.
	10.4	78.5	11.1	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

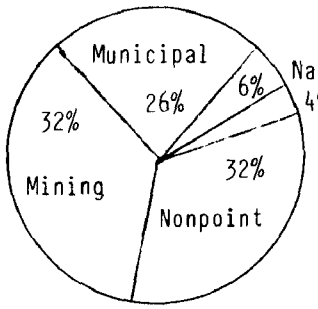


	Within Category	Change in Category
Acres Improved:	2,748	1,200
Acres Degraded:	4,181	35
Acres Maintained:	7,756	
Unknown:	238	

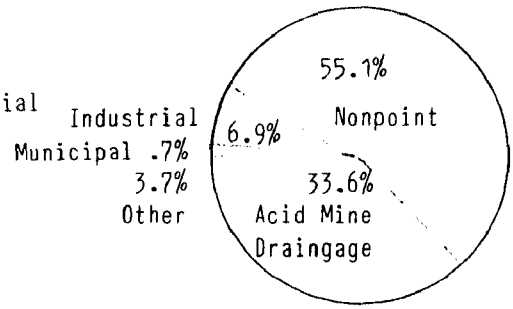
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

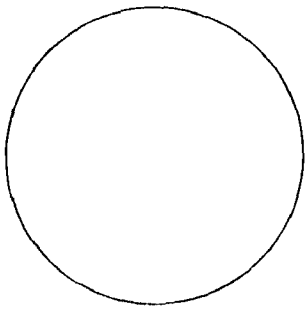
a. Streams and Rivers



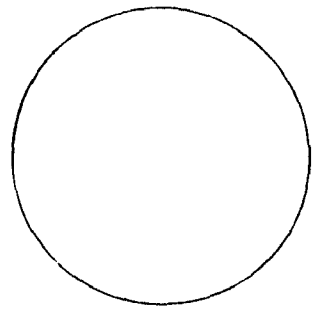
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X						Coli
Industrial		X			X	X	X	X	DO Temp
Non-Point	X	X	X	X		X	X	X	pH Toxics
Other (inc. natural)			X	X			X	X	Natural Turbidity

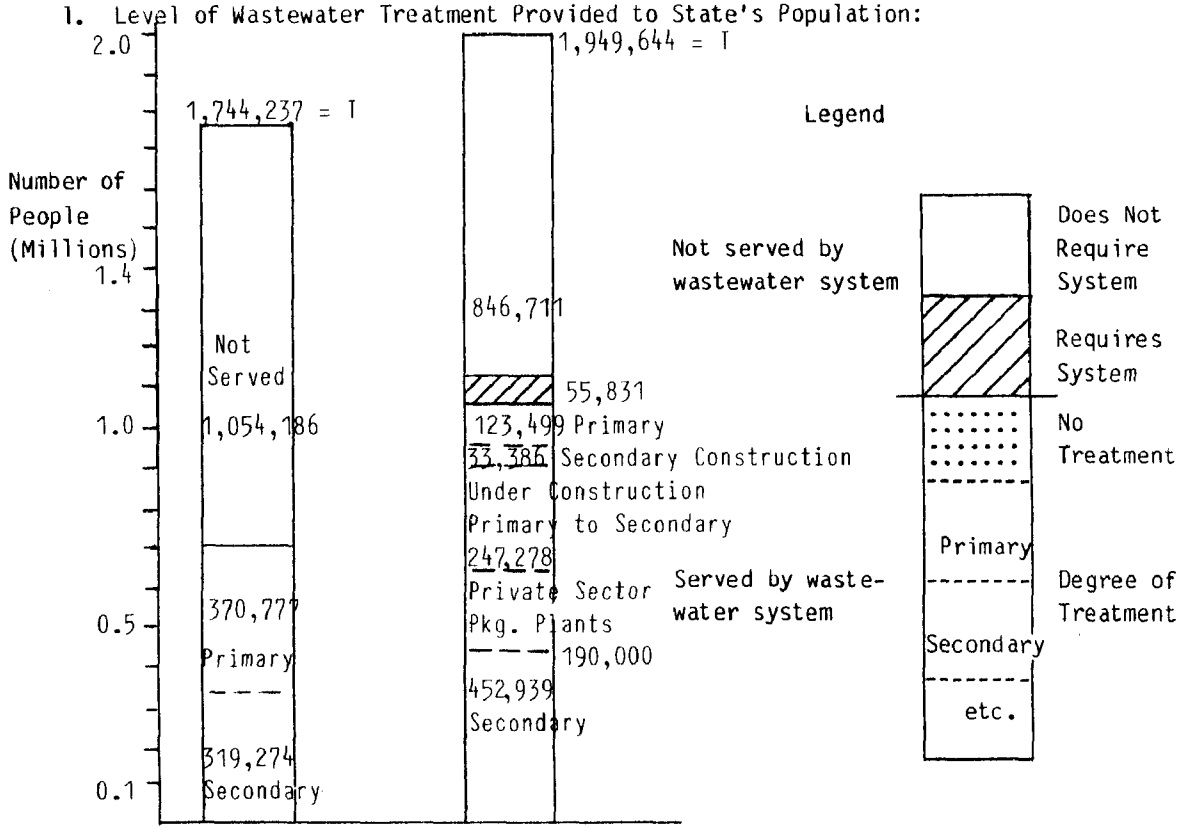
*Number of Stream/River Miles Affected by Toxics: 110
*Number of Lake/Reservoir Acres Affected by Toxics: (9402)**
*Number of Estuary Square Miles Affected by Toxics: NA
*Number of Ocean or Great Lakes Mi. Affected by Toxics: NA
**Certain strata at only certain times during the year exceed the WV State Mercury standard in 8 lakes whose combined surface area is shown.

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and River. Parallel Table II.A.2.

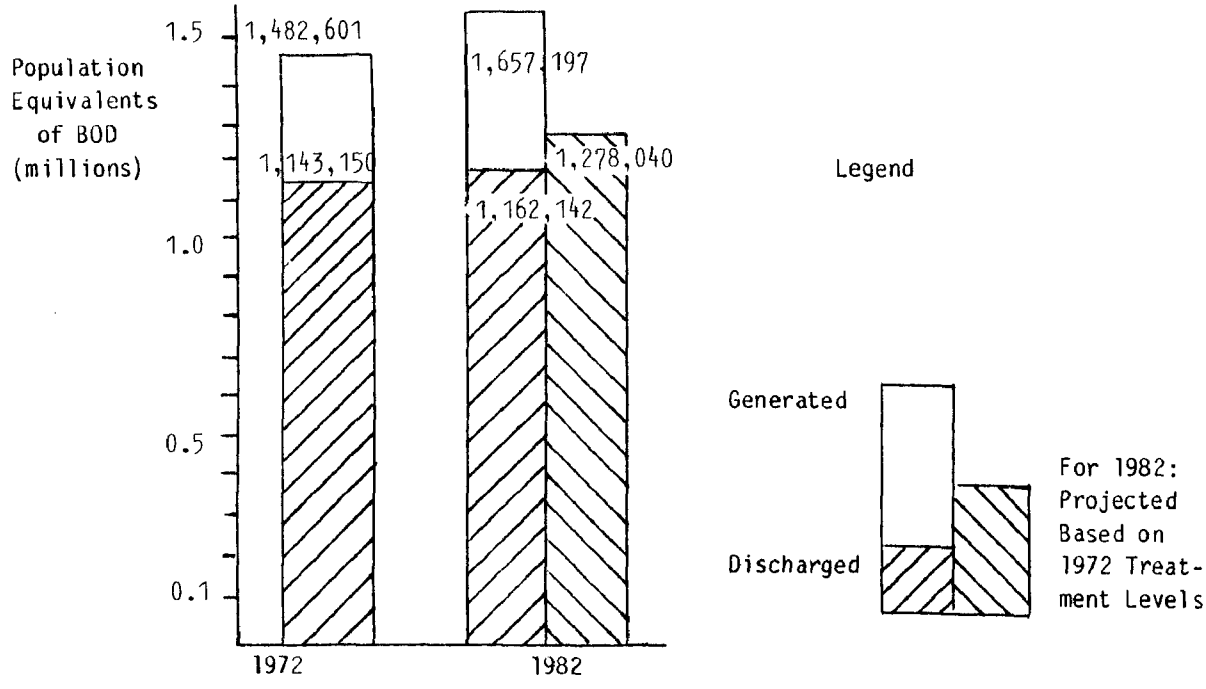
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections



Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	29		30
Facilities Meeting 1982 Permit Requirements+	7		27*
Percentage of Facilities for Which Requirements Being Met	24%		73%
Percentage of Flow For Which Requirements Met+	30.3%		95.3%
Facilities Needing Upgrading	22		3

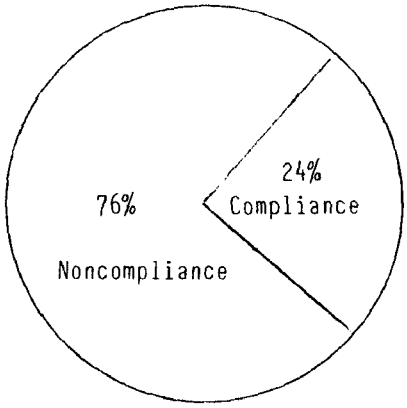
Total Permits in Effect in 1982: 180

+Includes "No-Discharge" Facilities

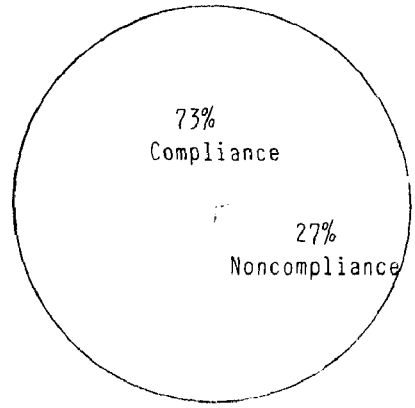
*NOTE: Includes 5 under const.)

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

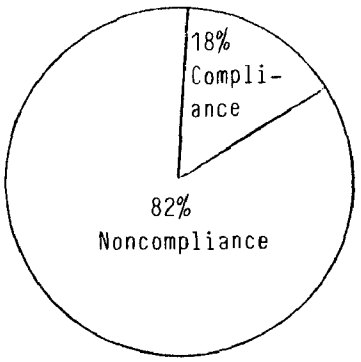
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	62	0	97
Facilities Meeting 1982 Permit Requirements+	11	0	84
Percentage of Facilities for Which Requirements Being Met	18	0	87
Percentage of Flow for Which Requirements Met+	60	0	91

Total Permits in Effect in 1982: (2) 950

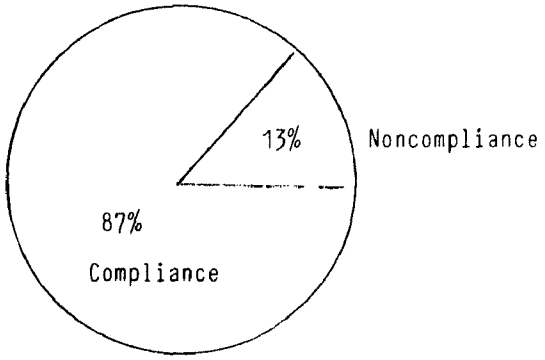
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

West Virginia has followed the national trend of establishing a nonregulatory approach to the nonpoint source problem. The emphasis is placed on the use of Best Management Practices (BMPs), which minimize the problems created by runoff and related nonpoint sources. In order to stimulate the adoption of these BMPs, a comprehensive educational program has been undertaken, focusing primarily on the potential polluters.

The four major nonpoint source pollution problems originate with agriculture, silviculture, construction and mining. For each, a plan has been prepared and adopted by the state after approval by the Environmental Protection Agency.

In addition, the state has begun a comprehensive study of the groundwater contamination associated with nonpoint source pollution. At this time, a specific plan to control such pollution has not been developed, but a number of alternative approaches are still under consideration.

The portion of the nonpoint source problem caused by improper agricultural practices primarily involves excessive sedimentation and, to a lesser extent, runoff of pesticides and other agricultural chemicals. The State Soil Conservation Committee, together with the 14 Soil Conservation Districts, is engaged in a major effort to promote adoption of BMPs by local landowners as an integral part of good agricultural management.

Construction problems are divided into those associated with highway construction, oil and gas drilling, and general construction. Since virtually all highway construction is controlled under the state Department of Highways, the appropriate BMPs are integrated into the DOH operations and contract specifications. The problems associated with oil and gas exploration are controlled as a part of the permit program of the Oil and Gas Division. Each operator is required to prepare and follow a sediment control plan. General construction, including housing subdivisions and shopping centers, do not fall within the jurisdiction of any state agencies. For this reason, general construction activities are the target of an educational program advocating the use of BMPs, but no control is possible at the present time to ensure compliance.

The fourth major cause of the State's nonpoint source pollution problems is mining. In fact, it has often been said that mine drainage, primarily from abandoned mine operations, is WV's leading water pollution problem. Since the federal Surface Mining Control and Reclamation Act of 1977 provided substantial funding for reclaiming sites of past mining abuses, the Division of Water Resources has been conducting a thorough inventory and analysis of locations where drainage from abandoned mines is occurring.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	M/L	M/W	M/L	S/W	I/W	I/L	I/L	S/L
Primary Pollutants	OxDe C,M, N	P C,N,SS,T	SS,T	T M,pH,SS	SS,T	SS,T	S	M, O C, N, OxDe

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: Voluntary cooperative action between the discharger and this agency is always the preferred approach to resolving noncompliance issues, particularly when additional large expenditures of capitol are needed. In these cases the most frequent methods used are a permit modification or pre-agreed upon administrative order with a schedule of compliance. In instances where this approach is not effective, administrative notices and order are issued. Civil action is only necessary in a small percentage of the cases. West Virginia has a very strong Water Pollution Control Act with substantial penalties, both civil and criminal, for violations ($10,000/day for civil violations, $2,500 minimum criminal/negligent violations). Acts of non-compliance that result in immediate environmental harm are first addressed through the criminal enforcement program (= 300 actions/year). If the non-compliance is not corrected then or cannot be corrected then it is dealt with administratively, and/or through civil action.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	33
Number of Pre-Administrative Actions:	20
Number of Administrative Actions:	9
Number of Judicial Actions:	14*

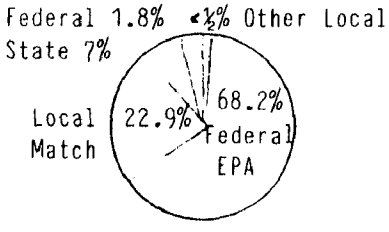
*A total of 252 criminal actions were brought in 1982 against the total permit holding population.

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 598.7 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 408.7 Million
*Other Federal:	$ 10.8
**State:	$ 42.2
***Local Match:	$ 137.0
Other Local:	$ 1/2%

*Covers only 1977-82 - no records available prior to that
**Covers only 1977-82 - no records available prior to that
***Estimated cost based on 25% eligible cost in form of bond issue.

C. Program Activities

The Division of Water Resources is responsible for the enforcement of state water pollution control laws. This includes the review of permit applications and issuance of those permits that are approved. West Virginia currently (as of 1981) has primacy for the federal discharge permit program. Monitoring of both ambient conditions and plant effluent is an on-going program utilizing the traditional chemical parameters as well as various biological monitoring techniques. Local inspectors are located throughout the state to conduct "walk through" inspections, respond to spills and complaints, field review permit applications, and enforce permit requirements. The construction grants program has been delegated to the state (60%) and applications for interim primacy are under consideration for both the Resource Conservation and Recovery Act, and the Underground Injection Control program. Several other programs such as ground water protection and solid waste disposal are administered by this division. All of these programs are supported by an extensive inorganics and organics laboratory.

Planning functions include: preparation of basin plans, waste load allocation issuance, certification for stream dredge and fill permits, certification for Federal Energy Regulatory Commission (FERC) permits, coordination of nonpoint source control program, conduct abandoned mine lands survey, conduct water use surveys, handle data processing needs, and coordinate federal grant application programs.

VI. SITE-SPECIFIC SUCCESSES

Prior to 1971 the Monongahela Basin, the State's largest watershed, was seriously impacted by acid mine drainage. This stream system was given the dubious distinction of being more polluted as a result of mine drainage than any other major river system in the United States. With the passage of the Act in 1972 and as a result of state pressure to treat low pH discharges prior to that, a general improvement in pH was observed. Surveys in the mainstem Monongahela and in Tygart Lake showed a significant improvement in game fish population. Little survey work was done on these waters prior to this time because the low pH values obviously prevented establishment of a sport fishing of any importance.

The survey data was so encouraging that walleyes were stocked from 1973-1976 and are now naturally reproducing. Now that walleye fishery is one of the best in the State. Muskies were stocked in the Monongahela from Fairmont to Morgantown in 1973, 1975, 1976, and 1977 and their growth rates are the best observed in West Virginia.

The obvious improvements in the fishery are not easily explained but the increase in pH is believed to be the main factor responsible for the improvements. Many of the larger discharges (greater than 10 mgd) of acid mine water did not treat their discharge prior to 1971, but with passage of the Act many companies initiated compliance programs and began construction and operation of treatment facilities. In addition, daylighting of abandoned deep mines by new surface mining operations has exposed calcareous overburden and helped raise the pH of discharges from abandoned sources. More regulatory personnel ensured better compliance with existing regulations on active operations, but abandoned sources continue to be a serious problem.

The improvement is dramatic. The cause is not that apparent. Some people feel the treated discharges may mask the effect of abandoned drainage and improvements are temporary. No one knows. But what is known is that there is a dramatic improvement in the fish population in that stream and an important recreational use that did not exist, now thrives.

During the late 1960s, the Kanawha River from Charleston to its confluent with the Ohio River at Point Pleasant was routinely devoid of oxygen for three or four months of the year. Recognizing the need for clean water, the major industrial dischargers and the State water pollution control agency began a 3 step, phased pollution abatement program. The summer of 1972, step 2, marked the first time the river did not become totally devoid of oxygen. The clean water act aided the program already in progress. That and the construction grants program has resulted in conditions that are so much improved that there are no longer any violations of the Dissolved Oxygen standard for that reach of river. The construction grants program has authorized the spending of $55,813,840 since 1972 resulting in the treatment of 24 million gallons of sewage daily in this stream segment.

The tangible benefits of this improvement are readily exemplified by the heavy recreational use of the river. Boating, water skiing, and swimming are currently very popular pastimes on the river. The fish population has improved to the point that the first bass tournament was held in that section last year (1982) and some of the most productive areas were directly in the outfall of some of the major dischargers.

Perhaps the most visible documentation of improvement is the Stern Wheel Regatta that is held every Labor Day (in the late 1960s and early 1970s the river would have been experiencing serious DO problems in late August). This river festival attracted 300,000 people in 1983. Such a use of the river would have been impossible prior to the clean up.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

The major emphasis has been the control of the traditional point source pollutants through first the state program and later the federal program. Fine tuning still remains to be done, but the day of the large discharge grossly degrading miles of stream is gone. The large mine discharges that were not treated prior to 1972 are now required to meet specific limits. This and new surface mining regulations have greatly reduced the impact from active mining sites. Abandoned sites have not been adequately addressed and continue to be a problem. The foundation for the NPS program has been established and has met with some initial success. Considerable effort has been placed on obtaining and operating the construction grant delegation, the federal discharge permit program, the resource conservation and recovery program, and the underground injection control program.

Part B. Major Remaining Problems:

- X - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

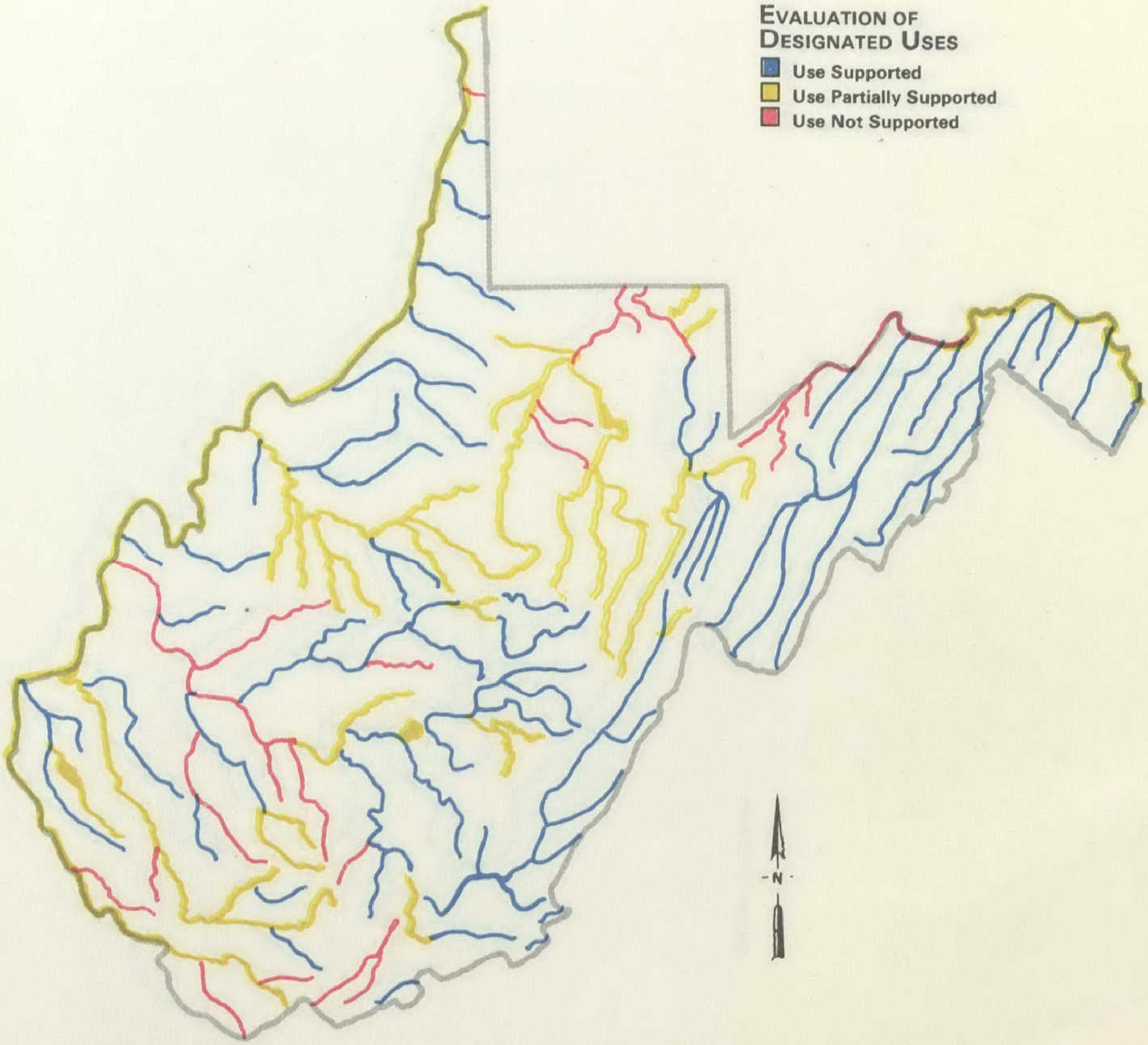
A program to evaluate and address the toxic program is needed. This will in part be addressed through further development of our RCRA and UIC programs. Many of our problems relate to nonpoint sources, and the state does need an aggressive program to address those problems. Our NPDES program is relatively new and will continue to require a great deal of department time. Abandoned mine discharges have been reported as a major water quality problem in West Virginia. Nothing or very little has been done to date to address water quality problems through the abandoned mines land program. One potential project is being considered that could have a beneficial impact on an important stream and one of our major lakes that currently does not meet its uses. Municipal sewage plant construction in West Virginia is threatened by the October 1984 cut off date on collection systems and reduced funding levels for treatment plant construction. With the current proposal the continued treatment of municipal wastewater will become a severe problem.

AGENCY PREPARING REPORT: Department of Natural Resources
Division of Water Resources

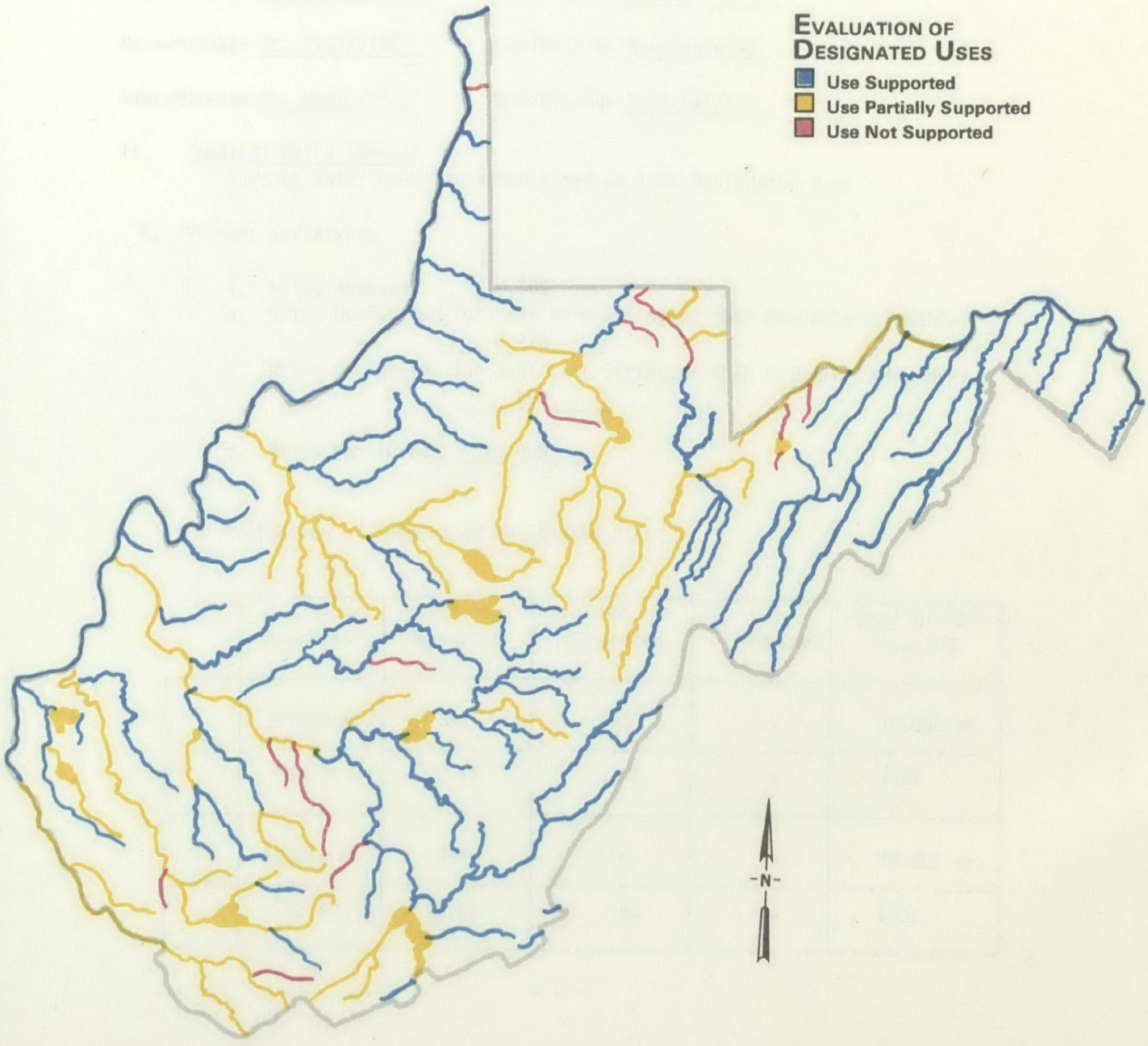
CONTACT PERSON & PHONE #: Eli McCoy (304)348-2107 or
Doug Steele (304)348-2108

DATE: September 12, 1983

WEST VIRGINIA
1972



WEST VIRGINIA
1982



State of Wisconsin*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 4,417,933 1980 4,705,335
State Surface Area 56,090 sq. miles
# of River Systems/Basins 28
# of River and Stream Miles 28,500 mi.; # of Border Miles* 561 mi.
# of Lakes and Ponds and Acreage 14,927 / 971,000 ac.
# of Marsh or Wetlands ac./sq.mi. 2,700,000 ac. or _____ sq. mi.
# of Coast Miles 820 mi.
# of Estuary sq. mi. N/A sq. mi.

*Border Rivers:

Name/Mileage Mississippi/228 Name/Mileage Brule/47

Name/Mileage St. Croix/120 Name/Mileage Menomonie/98

Name/Mileage St. Louis/23 Name/Mileage Montreal/45

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

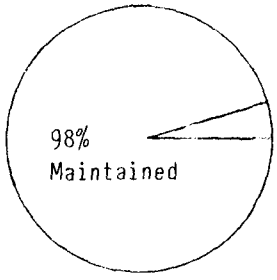
1. a. Miles Assessed: 18,500
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 7,778
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 500
   d. Miles Monitored: 16,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	17,800 mi.	385	315	-	18,500 mi.
	96.2%	2.1%	1.7%	-	100%
1982	18,015 mi.	375	110	-	18,500 mi.
	97.4%	2.0%	.6%	-	100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	-	335*
Miles Degraded:	0	-
Miles Maintained:	18,165	
Unknown:	-	

* Includes 104 miles where more stringent water quality standards are now in effect and are being achieved.

B. Lakes and Reservoirs

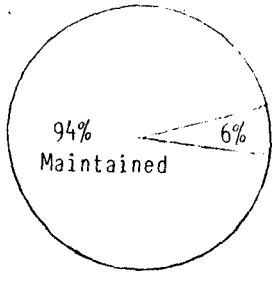
1. a. Acres Assessed: 970,869
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 137,824
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 163,000

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	747,497 ac.	188,372	35,000	-	970,869 ac.
	77.0%	19.4%	3.6%	-	100%
1982	801,497 ac.	169,372	0	-	970,869 ac.
	82.6%	17.4%	-	-	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

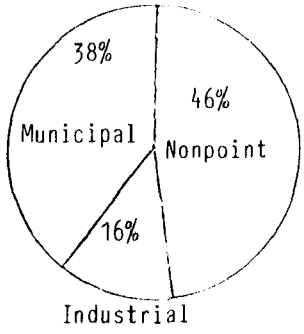


	Within Category	Change in Category
Acres Improved:	17,000	37,000
Acres Degraded:	0	0
Acres Maintained:	916,869	
Unknown:		

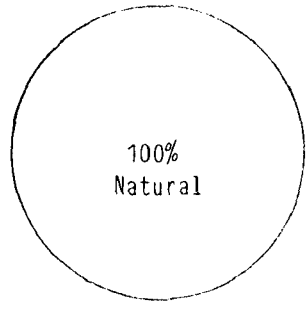
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

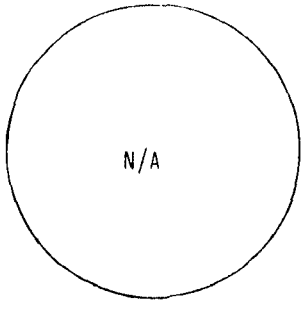
a. Streams and Rivers



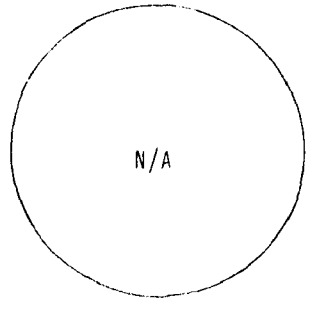
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other	2 Most Serious
Municipal	X	X	X			NH-3			DO, NH-3
Industrial		X			X	X			DO, Toxics
Non-Point	X	X	X			NH-3	X		Nut., DO
Other (inc. natural)		X							

*Number of Stream/River Miles Affected by Toxics: 300

*Number of Lake/Reservoir Acres Affected by Toxics: 47,000

*Number of Estuary Square Miles Affected by Toxics: _____

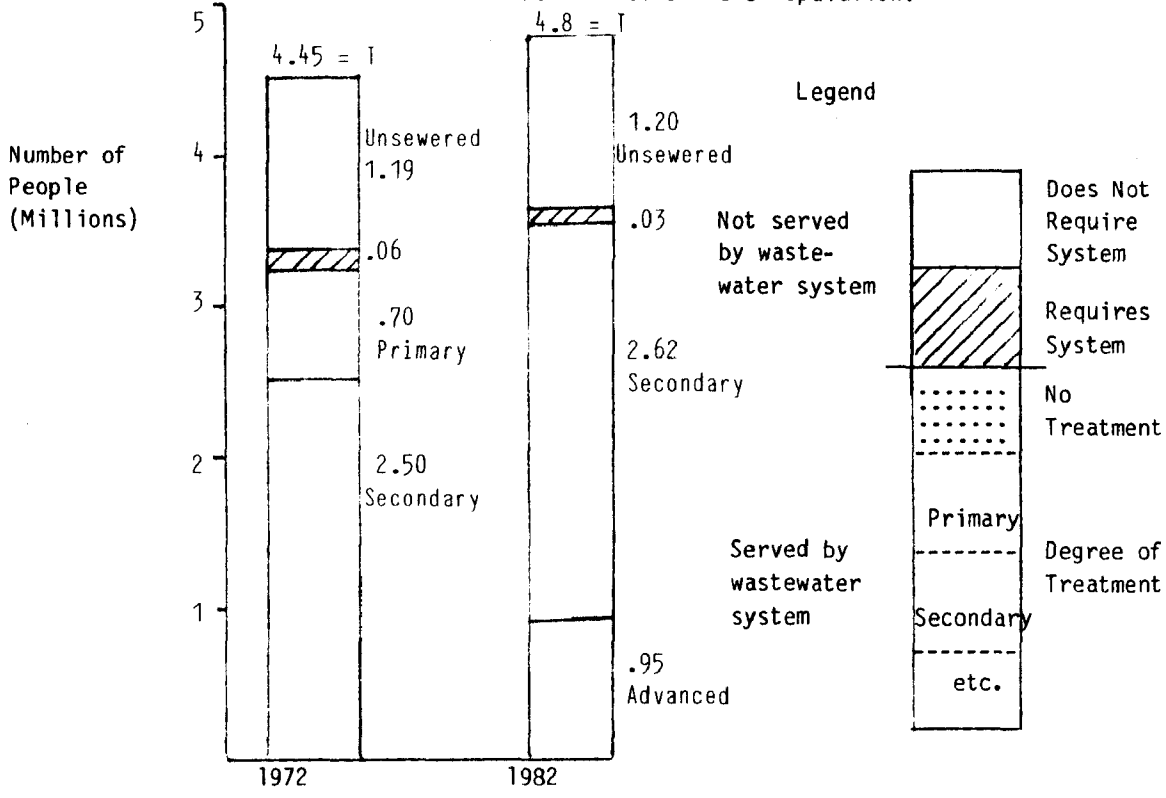
*Number of Ocean or Great Lakes Mi. Affected by Toxics: _____

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

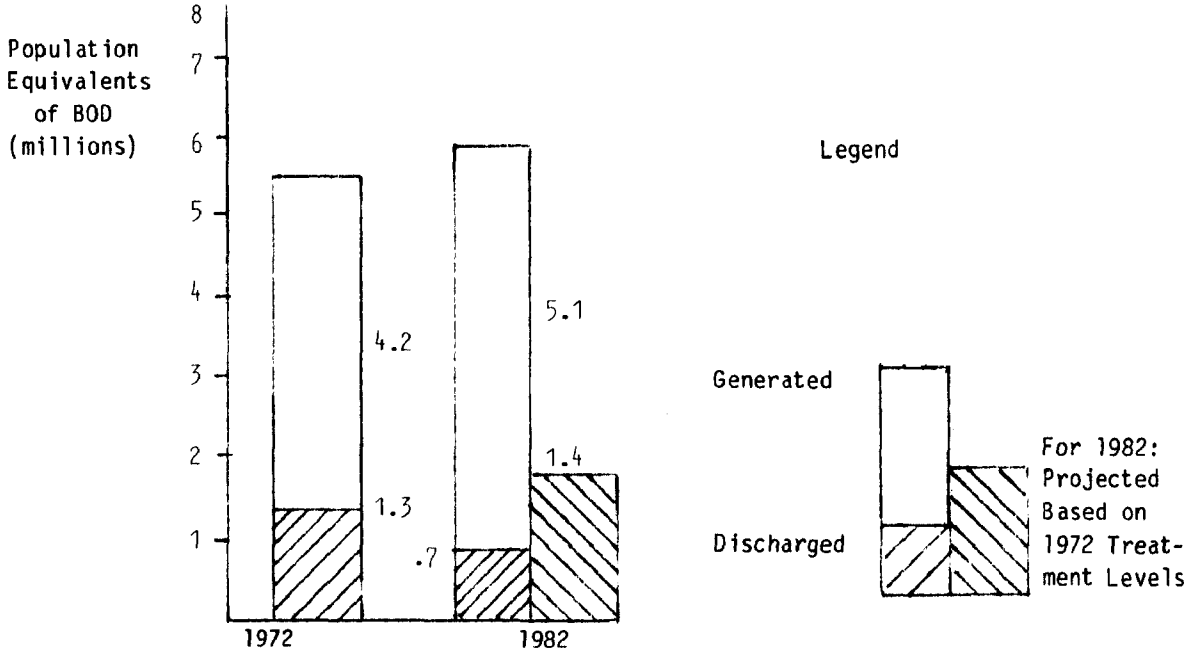
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

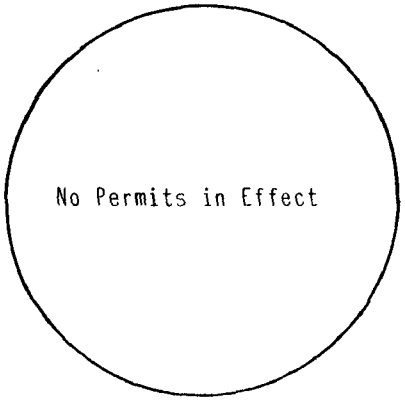
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0*	21	81
Facilities Meeting 1982 Permit Requirements+	17	--	60
Percentage of Facilities for Which Requirements Being Met	0	--	74%
Percentage of Flow For Which Requirements Met+	8%	--	85%
Facilities Needing Upgrading	64	21	21

Total Permits in Effect in 1982 698

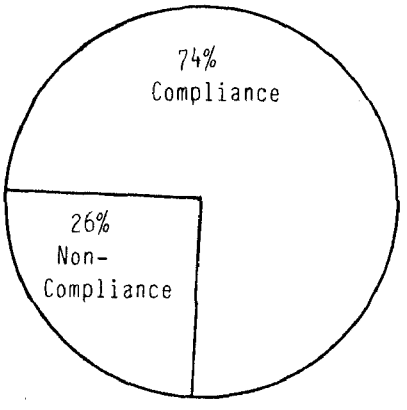
+Includes "No-Discharge" Facilities *Permit program did not begin until 1973

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

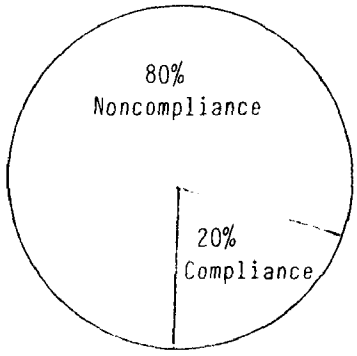
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0	0	287
Facilities Meeting 1982 Permit Requirements+	200	-	270
Percentage of Facilities for Which Requirements Being Met	20%	-	94%
Percentage of Flow for Which Requirements Met+	85%	-	99%

Total Permits in Effect in 1982 1,500

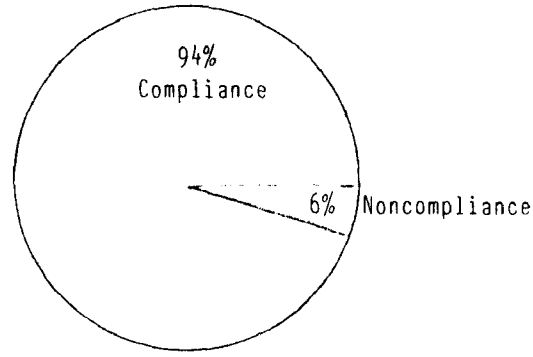
+Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

Nonpoint sources probably affect almost every lake and stream in the southern two-thirds of Wisconsin. The watersheds draining to those lakes and streams most significantly affected form a U-shaped pattern that begins in Polk County in the northwest and continues southward through the west-central, southwest, southern and east-central parts of the state, turns northward along Lake Michigan, and ends in Oconto County. Included in this zone are more than 120 deep, high quality, recreational inland lakes plus the near-shore waters of Lake Michigan. About 40 percent of the state's Class I and II trout streams, many smallmouth bass streams, and many severely degraded streams are also located in this area.

The major nonpoint source problems in Wisconsin arise from cropland erosion, animal wastes, woodland grazing by livestock, construction activities and urban runoff. Silvicultural and mining activities are generally not considered major nonpoint sources in Wisconsin, except in some localized areas.

In recognition of the seriousness of water quality degradation from nonpoint source pollution, the Wisconsin Legislature created the Nonpoint Source Water Pollution Abatement Program in 1978 as part of the Wisconsin Fund. The Legislature provided funds to be used for cost-sharing the installation of approved land management practices which are designed to control nonpoint sources. Financial and technical resources are concentrated in critical areas, called priority watersheds, where maximum water quality benefits would result from the investment made. At the present time, there are 17 ongong Priority Watershed Projects which were selected between 1979 and 1983. In general, a typical Priority Watershed Project follows an eight to nine year progression from selection to completion of practice implementation.

Approximately $12 million have been allocated to nonpoint source control through June, 1983. An additional $10 million has been appropriated for the current biennium (1983-85). The Department has also coordinated the funding in project areas with programs administered by federal agencies including the Rural Clean Water Program (RCWP), Clean Lakes Program (Section 314 of PL 92-500), and special projects funded through the Agricultural Conservation Program and the Small Watershed Program (PL 83-566).

It should be emphasized that the 1972 and 1982 water quality maps prepared under Part I.E. are for the most part reflective of point source related water quality impacts (due to the point source orientation of Wisconsin's current water quality standards).

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals*
Severity & Extent	S/L	S/W	I/L	I/L	S/L	N/A	N/A	S/W
Primary Pollutants	C,Sal,M SS,Nut. T, OxDe	C, P, Nut.,SS,T	SS, T	SS, T	SS, T	N/A	N/A	Nut. OxDe, C

*Includes Animal Waste

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach: The structure of our enforcement actions is as follows: 1) Primary Enforcement - Informal and formal contacts by the DNR field staff ("Preadministrative Enforcement"). 2) Secondary Enforcement - Formal contracts and follow-up by the District Environmental Enforcement staff, including NOV letters, Enforcement Conferences and other activities. 3) Referral to Dept. of Justice - Since 1972, WDNR has made 181 referrals; 111 industrials (of which 22 remain open, and 70 municipals (of which 18 remain open). In the past 18 months we have referred 28 cases and settled 29. Forfeitures collected during the period are approximately $430,000. Wisconsin's enforcement actions are keyed to the violations, not to the degree of significant noncompliance with the WPDES permit. The success of the enforcement program has been enhanced through the efforts of a decentralized and multi-disciplinary staff.

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

Total Number of Facilities:	1,735*
Number of Pre-Administrative Actions:	1,500
Number of Administrative Actions:	100
Number of Judicial Actions:	28 initiated, 29 settled, 40 remain open

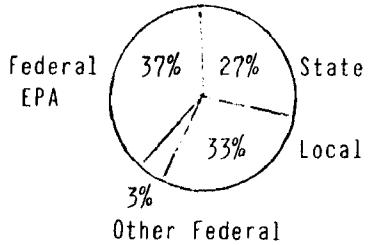
* All facilities; significant facilities cannot be separated from nonsignificant facilities.

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 1,865.196 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 699.626 Million
Other Federal:	$ 47.722
State:	$ 492.510
Local Match:	$ 625.338
Other Local:	$

C. Program Activities

ENVIRONMENTAL EVALUATION

A successful water quality management program depends on monitoring activities sufficient to measure progress in meeting water quality goals and to provide data useful for future decisions. Wisconsin's monitoring program includes the collection of data to measure large-scale trends in water quality measurements of water quality changes resulting from pollution control projects and collection of data for use in establishing effluent limits and other program requirements and policies.

STANDARDS AND PLANNING

The establishment of water quality standards is necessary to define and meet the goals and objectives of state and federal law. Standards provide the basis for specific requirements which are necessary to assure restoration and maintenance of the chemical, physical and biological integrity of waters.

Comprehensive and consistent aproaches to implementing control programs require planning. This activity is needed to assure that all factors and alternatives for both point and nonpoint control are considered prior to implementation.

IMPLEMENTATION

The WPDES permit system provides the basic tool for implementing controls on point sources. It functions as a means of attaining compliance and also enables the Department of Natural Resources (DNR) to track the continuing effectiveness of wastewater treatment. DNR monitoring assures the accuracy of permittee reporting.

Technical assistance is provided to local communities and other permittees to assure good operational attention for wastewater treatment plants through training and trouble-shooting. Enforcement of permit conditions is carried out through a system of notification, follow-up, referral to legal authorities and litigation.

Nonpoint source control programs are voluntary and implemented through a priority watershed program. Practices for controlling pollutant runoff are developed and installed through a cooperative program with local land conservation agencies.

GRANTS

Construction grants for the planning, design and construction of publicly owned treatment works are provided through either the federal program or by a state program (Wisconsin Fund). Wisconsin has been delegated responsibility to operate the federal construction grants program. The Wisconsin Fund, although it provides a smaller grant share, has been an effective means to assist many small communities in the state in complying with permit conditions. Over the period from 1972 to 1982 $1,245 million in state and federal assistance has been provided for wastewater facilities construction.

A portion of the Wisconsin Fund program is also devoted to assisting in the installation of nonpoint source management practices.

VI. SITE-SPECIFIC SUCCESSES

Koshkonong Creek

Koshkonong Creek originates near Sun Prairie and flows 42 miles southeast to join the Rock River at Lake Koshkonong. Prior to 1982, Sun Prairie's waste treatment plant discharged to the creek near the southern edge of the village. Chemical and biological samples collected in 1981 and previous studies indicated Koshkonong Creek was extremely polluted. Water quality impacts were measurable up to 20 miles below the plant. Past effluent monitoring data show BOD_5 values of 15 to 60 mg/l and anoxic conditions for 2 to 4 miles below the plant. Toxic concentrations of ammonia were found several miles below the plant. Few fish were ever found in this stretch of stream, slime growths were abundant and the stream was aesthetically poor.

A new treatment plant was constructed 2.5 miles downstream from the old plant and went into operation in December 1981. Water quality data collected in July 1982 indicated an effulent BOD of 3.1 mg/l and DO concentrations in the stream ranged from 5.9 to 8.3 mg/l, all above the fish and aquatic life standard of 5 mg/l. Ammonia concentrations in the stream are now less than 1 mg/l. Slime growths have disappeared and an abundant population of forage fish composed of darters and other species indicating good water quality has been observed. The greatly improved water quality will result in an improved sport fishery further downstream.

Flambeau River

The Flambeau River is a major stream in north central Wisconsin popular for canoeing and fishing. A paper mill has operated at the City of Park Falls and discharged to the river since 1898. Three impoundments located in a 12-mile stretch of river below Park Falls were severely degraded by the paper mill discharge up to 1978-1980. Water quality impacts were measurable for almost 50 miles below Park Falls. Annual average BOD discharged by the mill in 1979 was 23,168 lbs./day, and was higher in previous years. The 12 miles of stream below Park Falls currently has a DO variance of 3 mg/l. Downstream from there, the DO standard is 5 mg/l. Dissolved oxygen in the 12-mile variance area was less than 3 mg/l 72 percent of the time in May to October, 1976, and 68 percent of the time from April to September 1977. DO was less than 5 mg/l 82 percent of the time 12 to 18 miles below the mill from May 1976 to September 1977. DO concentrations down to 3.3 mg/l almost 50 miles below the mill were measured in the winter during the late 1970's. Fishermen regularly complained of taste and odor problems in fish taken from the 50 miles of river below the mill. Few fish inhabited the three impoundments for 12 miles below Park Falls. An excellent fishery is located upstream from Park Falls.

The paper mill put a new waste treatment system into operation in 1980. Effluent BOD averaged 2,142 pounds per day during the first 6 months of 1983 - a reduction of greater than 20,000 pounds per day. Since 1980, DO concentrations have been higher than the fish and aquatic life standard of 5 mg/l in all areas of the river - an upgrading of 50 miles of stream. There have been no taste and odor complaints from fishermen since 1978. Fish habitat in the three impoundments below Park Falls is still poor due to over 80 years of poorly treated effluent. However, water quality is now meeting standards and habitat will recover and allow the fishery to improve.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

One of the primary water pollution problems in Wisconsin has been associated with a primary state industry, the pulp and paper mills. Several rivers in the state received virtually untreated wastewaters from one or more mills until the installation of best practicable control technology in the mid-to-late 1970's. The severe and persistent dissolved oxygen deficits in these rivers have disappeared and, with more stringent wasteload allocations in place, fish and aquatic life standards are being achieved.

Water pollution from publicly owned wastewater treatment plants were also major environmental problems both in localized areas and from the broader perspective of phosphorus control in the Great Lakes basin. Many municipalities experienced substantial population and industrial growth and many facilities were reaching or were beyond their design lifetime. Planning and design for treatment plants and for control of combined sewer overflows in the state's major urban area (Milwaukee) were prominent activities.

Part B. Major Remaining Problems:

____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
_X_ - Groundwater resource quality protection or supply assurance.
_X_ - Identification and control of toxic pollutants from industrial and non-point sources.
_X_ - Municipal wastewater plant operation, maintenance, and rehabilitation.
____ - Pollution arising from abandoned industrial and/or mining facilities.

Completion of several treatment plant projects, particularly those in the Milwaukee area, are needed to attain water quality goals and objectives. Also, providing proper operation and maintenance at the larger number of new treatment plants is an important element in maintaining water quality. Assuring that operators have the skills necessary to run the more sophisticated facilities which have been built will require a continuing emphasis.

Although great progress has been made in controlling the discharge of conventional pollutants, the discharge of nutrients and toxic pollutants and their effects on water quality is a concern. Monitoring programs must be enhanced and control strategies must be developed to assure reductions or elimination of these pollutants from wastewater or nonpoint sources.

Assuring continued protection for Wisconsin's abundant groundwater resource is an important element in the state's water quality program. Development of legislation and standards to protect groundwater from contamination are an integral part of the future water quality program.

Continued programs to control nonpoint sources of pollution are necessary to maintain and enhance water quality. Activities are needed to establish cause-and-effect relationships and to develop appropriate water quality standards and control programs.

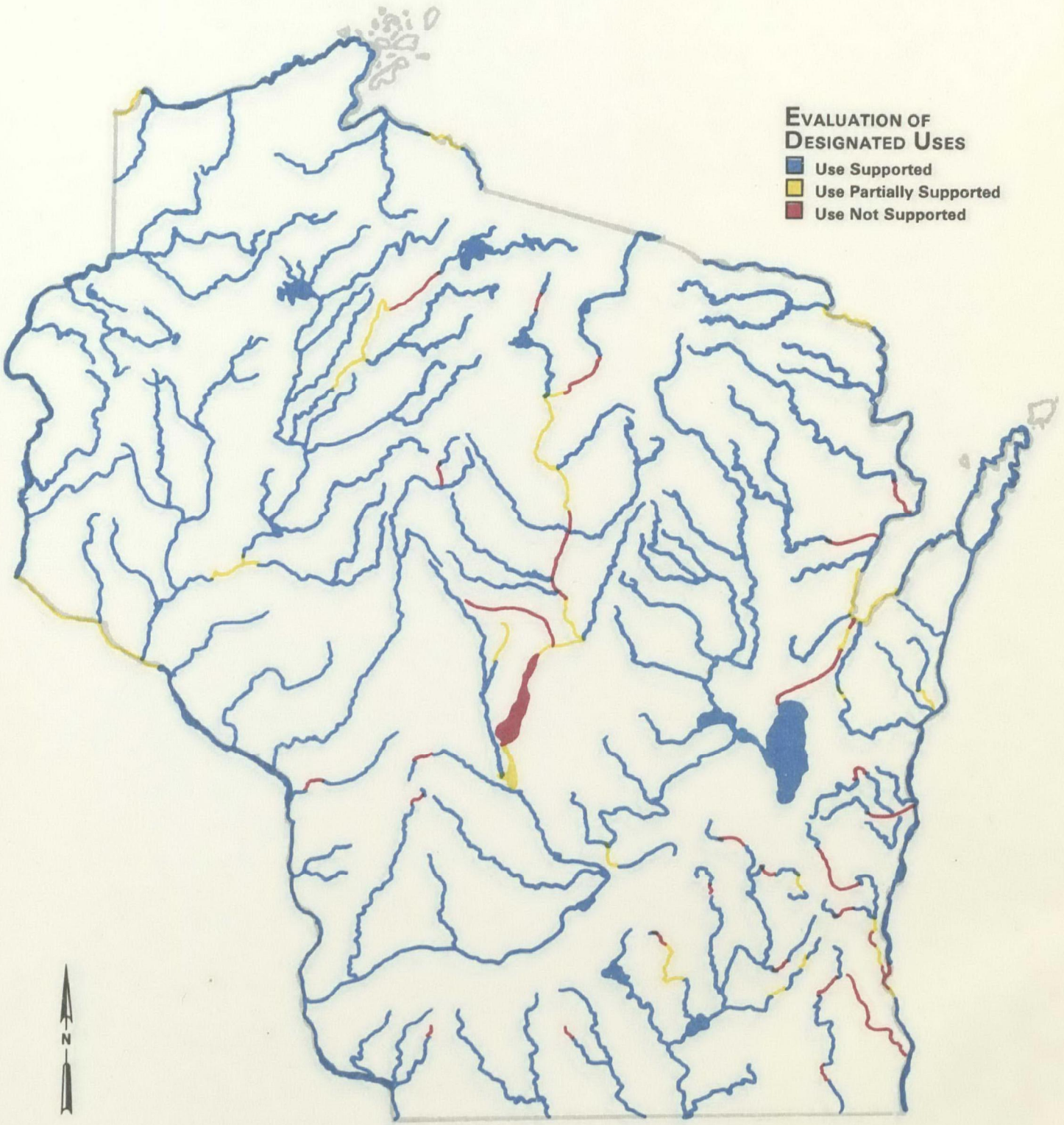
AGENCY PREPARING REPORT: Department of Natural Resources

101 S. Webster Madison, WI 53707

CONTACT PERSON & PHONE #: Dan Moran 608-266-8148

DATE: September 15, 1983

WISCONSIN
1972



WISCONSIN
1982

State of Wyoming*

*See Introduction To Appendix
For Explanation of Format

PROGRESS IN THE CLEAN WATER PROGRAM

I. ATLAS

State Population 1970 332,416 1980 469,557
State Surface Area 97,914 sq. miles
# of River Systems/Basins 14
# of River and Stream Miles 19,655 mi.; # of Border Miles* 0 mi.
# of Lakes and Ponds and Acreage 2,670 / 411,284 ac.
# of Marsh or Wetlands ac./sq.mi. 2,856,000 ac. or 2,900* sq. mi.
# of Coast Miles 0 mi.
# of Estuary sq. mi. 0 sq. mi.

*Border Rivers:

Name/Mileage _____ Name/Mileage _____

Name/Mileage _____ Name/Mileage _____

II. AMBIENT WATER QUALITY

Surface Water Uses Supported Based on 1982 Designated Uses

A. Streams and Rivers

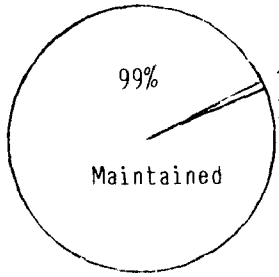
1. a. Miles Assessed: 19,655
   b. Miles Designated for Uses More Stringent than Fishable/Swimmable: 6,611
   c. Miles Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Miles Monitored: 3,500

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Miles Assessed
1972	13,095 mi.	595	165	6,000	19,855 mi.
	66 %	3 %	.8 %	30.2 %	100%
1982	19,065 mi.	550	40	0	19,655 mi.
	97 %	2.8 %	.2 %		100%

3. Changes In and Within Use Support Between 1972 and 1982

By Percentage



	Within Category	Change in Category
Miles Improved:	205	0
Miles Degraded:	0	0
Miles Maintained:	19,065	
Unknown:	0	

B. Lakes and Reservoirs

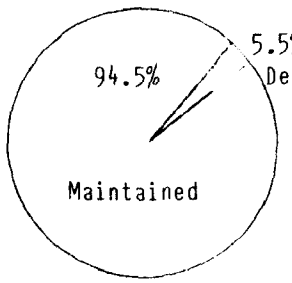
1. a. Acres Assessed: 411,284
   b. Acres Designated for Uses More Stringent than Fishable/Swimmable: 179,362
   c. Acres Designated for Uses Less Stringent than Fishable/Swimmable: 0
   d. Acres Monitored: 124,389

2. Evaluation of Support of Designated Uses

	Supported	Partially Supported	Not Supported	Unknown	Total Acres Assessed
1972	0 ac.	0	0	389,955	389,955 ac.
	---	---	---		100%
1982	389,738 ac.	21,546	0	0	411,284 ac.
	95 %	5 %	0	0	100%

3. Changes In and Within Use Support 1972 - 1982

By Percentage

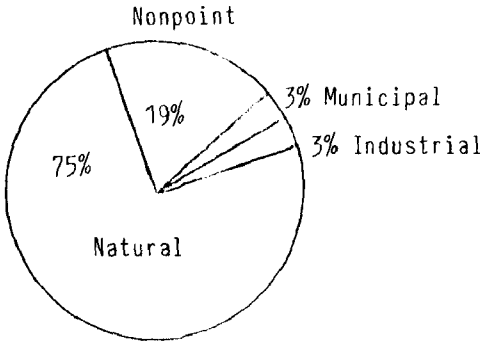


	Within Category	Change in Category
Acres Improved:	0	0
Acres Degraded:	21,546	0
Acres Maintained:	389,738	
Unknown:	0	

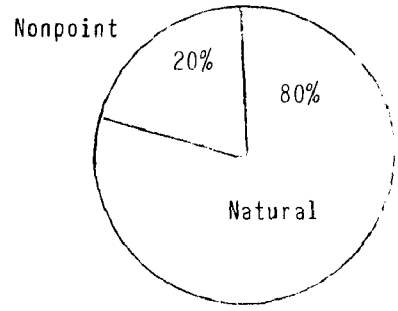
E. Causes for Less Than Full Support of Designated Uses in 1982

1. By Pollutant Sources --- By Percentage

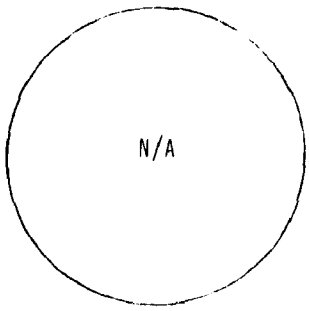
a. Streams and Rivers



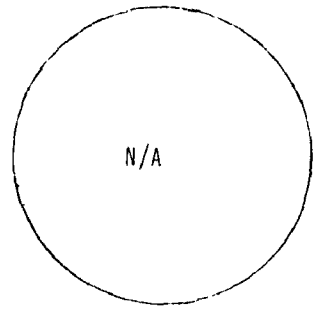
b. Lakes and Reservoirs



c. Estuaries and/or Oceans



d. Great Lakes



2. By Major Parameters of Concern:

Parameters

Discharge Sources	Coli.	D.O.	Nut.	pH	Temp.	Toxics*	Turb.	Other NH-3	2 Most Serious SALINITY
Municipal	X	X	X					X	
Industrial		X		X	X	X		X	
Non-Point	X	X	X				X	X	X
Other (inc. natural)		X	X	X	X		X		X

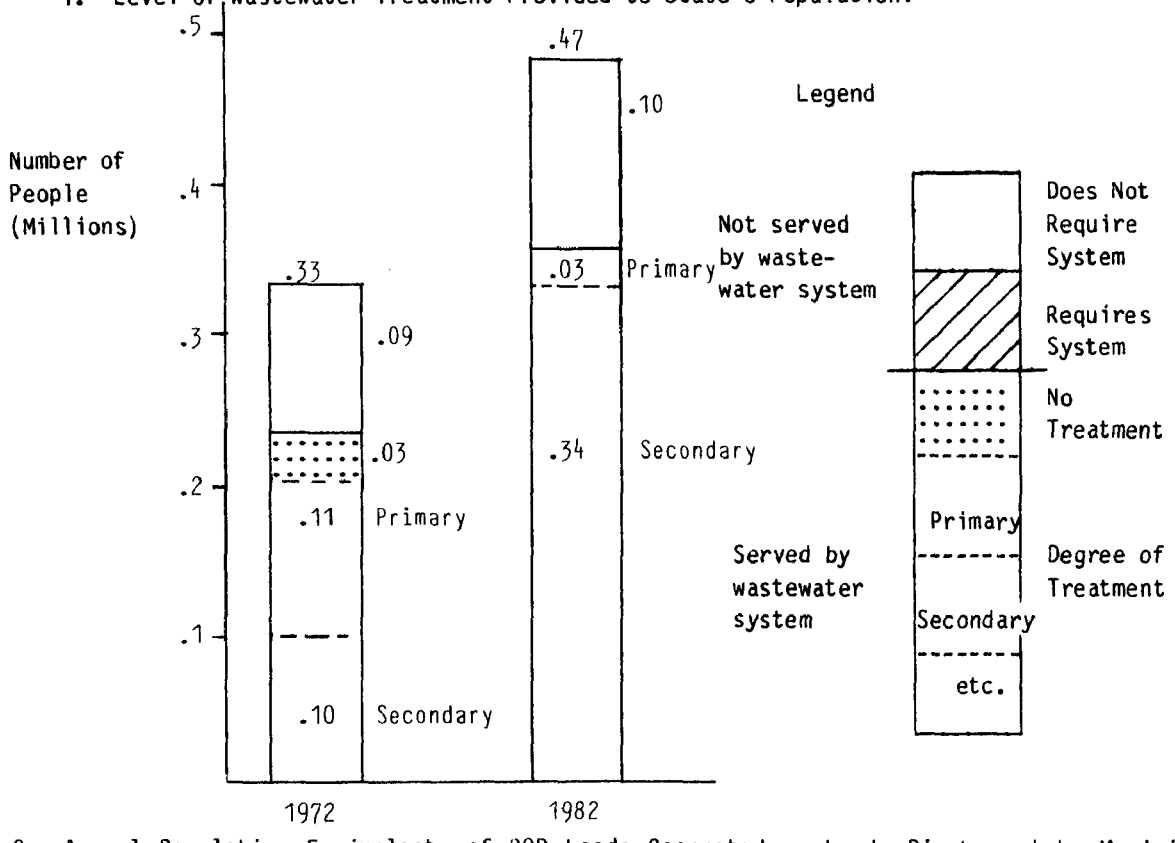
*Number of Stream/River Miles Affected by Toxics: 10
*Number of Lake/Reservoir Acres Affected by Toxics: 0
*Number of Estuary Square Miles Affected by Toxics: N/A
*Number of Ocean or Great Lakes Mi. Affected by Toxics: N/A

F. State Maps for 1972 and 1982 Showing Extent of Support of Designated Uses in Stream and Rivers. Parallel Table II.A.2.

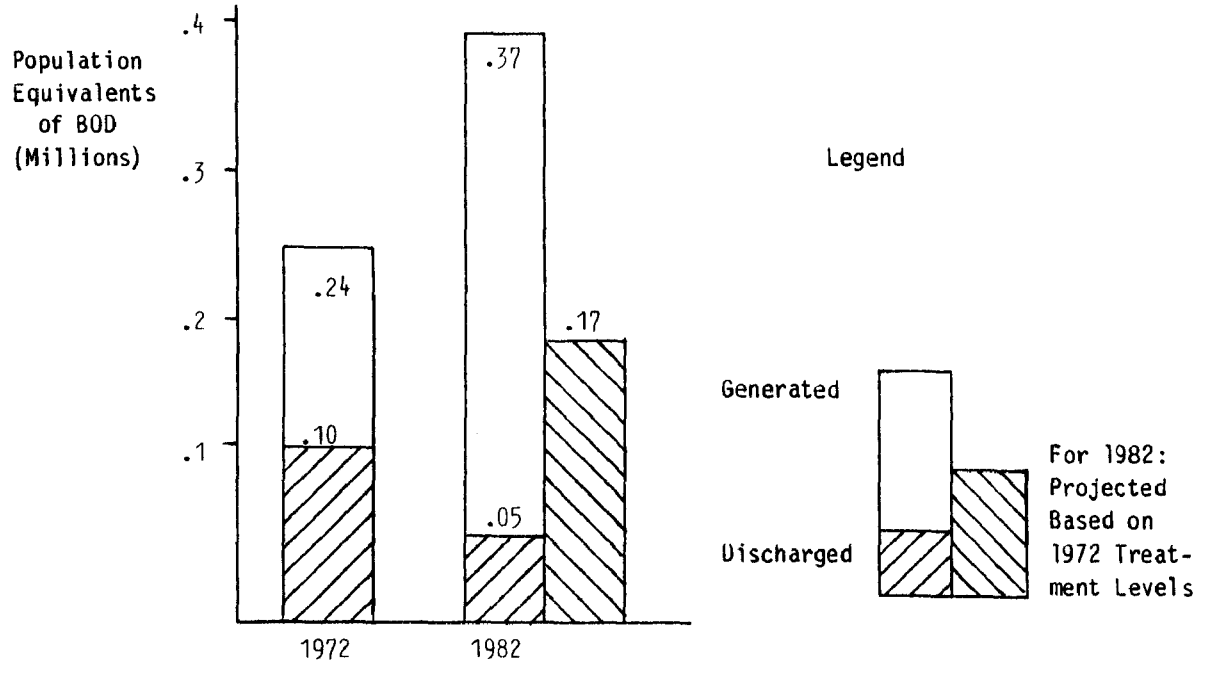
III. POINT SOURCES

A. Municipal

1. Level of Wastewater Treatment Provided to State's Population:



2. Annual Population Equivalents of BOD Loads Generated vs Loads Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections*



*Includes loads to municipal facilities from other than domestic sources

3. Significant Municipal Facility Compliance

a.

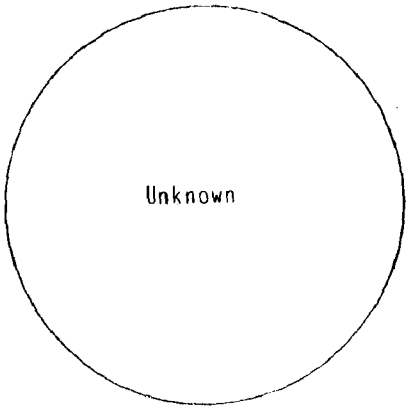
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0	6	5
Facilities Meeting 1982 Permit Requirements[+]	0	4	5
Percentage of Facilities for Which Requirements Being Met	0	67%	100%
Percentage of Flow For Which Requirements Met[+]	0	51%	100%
Facilities Needing Upgrading	0	2	0

Total Permits in Effect in 1982: 174

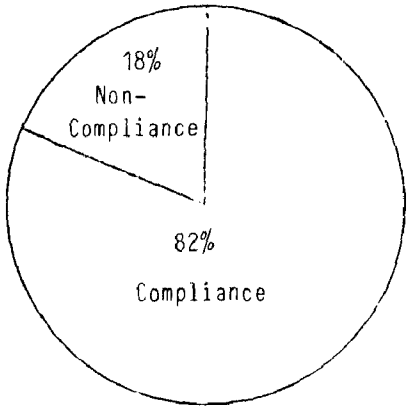
[+]Includes "No-Discharge" Facilities

b. Significant Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



B. Non-Municipal Facility Compliance

a. Significant Industrial & Other Significant Non-Municipal Facilities

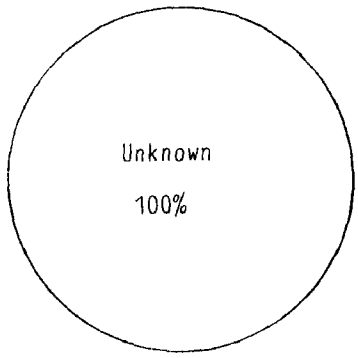
	1972	1982 Interim Permits	1982 Final Permits
Facilities with Permits	0	0	31
Facilities Meeting 1982 Permit Requirements[+]	0	0	31
Percentage of Facilities for Which Requirements Being Met	0	0	100%
Percentage of Flow for Which Requirements Met[+]	0	0	100%

Total Permits in Effect in 1982: 626

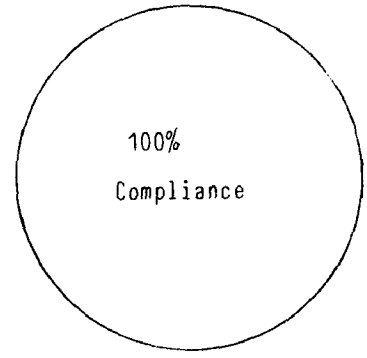
[+]Includes "No-Discharge" Facilities

b. Significant Non-Municipal Facility Compliance: 1972 vs. 1982
By Percentage

1972:



1982:



IV. NON-POINT SOURCE POLLUTION CONTROL

The State of Wyoming has adopted a voluntary approach to non-point source pollution control based upon the availability of technical assistance and federal cost share incentives. Because nearly 50% of the land area of Wyoming is under federal stewardship, intergovernmental agreements between the Department of Environmental Quality and appropriate federal agencies have been implemented to control non-point sources of pollution on federal lands. The Department of Environmental Quality has funded research and extensive efforts to develop BMP's and encourage their use. Research/extension programs have been undertaken to reduce non-point sources of pollution originating from agricultural and grazing activities, urban runoff and reserve pit reclamation. Non-point source BMP's are gradually finding widespread acceptance throughout the state.

Summary - Non-Point Source Pollution Control

	Urban	Ag/Irr.	Silv.	Mining	Cons.	Hydro.	Salt. Int.	Residuals
Severity & Extent	I/L	M/W	M/L	M/L	I/L	S/W	N/A	I/L
Primary Pollutants	C,M OxDe	Nut.,P,SS Sal.,OxDe	T,SS	SS,M	T,SS	LoFlo,T SS		C,OxDe

V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

A. Enforcement

1. State's Approach:

The Division's enforcement policy is designed to employ conference and conciliation whenever possible and to use formal enforcement actions or court complaints only after these tactics have failed to achieve the desired objective. The usual steps taken in the Division enforcement policy are as follows:

(1) Letter of Violaton;
(2) Notice of Violation;
(3) Court Action and/or a Cease and Desist Order

2. Actions Taken Since January 1982 Against Municipal and Non-Municipal Facilities in Significant Non-Compliance in 1982

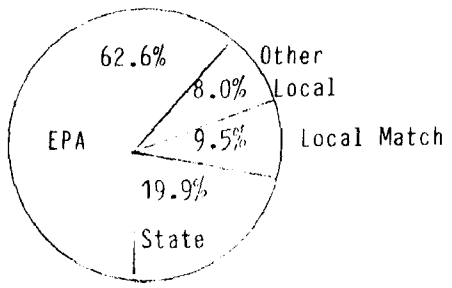
Total Number of Facilities:	2
Number of Pre-Administrative Actions:	2
Number of Administrative Actions:	0
Number of Judicial Actions:	0

B. Municipal Facility Investment

1972 - 1982
Cumulative Capital Investment for Municipal Wastewater Facilities
By Source of Funds

TOTAL INVESTMENT = $ 92.1 Million

By Percentage



Categories of Sources

Federal - EPA:	$ 57.7 Million
Other Federal:	$ 0
State:	$ 17.4
Local Match:	$ 8.7
Other Local:	$ 8.3

C. Program Activities

The Wyoming Department of Environmental Quality (DEQ) was formed in 1973. Starting with some personnel inherited from the Health Department, DEQ has grown over the years to handle a broad range of activities that are described below.

The Department of Environmental Quality is the state agency responsible for coordinating water quality management planning under the Federal Water Pollution Control Act and the Wyoming Environmental Quality Act. The Water Quality Division is responsible for providing technical liaison with local planning agencies and insuring that the final plans are consistent with the Environmental Quality Act and state programs relating to the environment.

The Division has administered a program regulating the design and construction of small wastewater systems since 1973. It requires obtaining a permit prior to installing or modifying a small wastewater system. A large majority of these systems are the conventional septic tank/leach field system.

The Division operates an oil and hazardous substance response program. Elements of this program include discharge notification procedures and field response actions from the district offices to these spill events which threaten or enter waterways to ensure that the responsible party has initiated containment, cleanup, control, and counter measures (SPCC) plans.

The Division administers a certification program to insure the technical competency of the individuals operating publicly owned water and sewage treatment plants and sewage collection and water distribution systems throughout the state. Each system is classified by the Department according to its size and complexity. The chief operator must be certified at least at the same level as the plant or system's classification.

Section 401 of the Federal Water Pollution Control Act requires Wyoming to certify a dredge or fill operation which may result in discharge into navigable waters. Certification if granted, states that building or operating a dredge or fill activity will not violate any of the state water quality standards. The Division reviews proposed construction, operation and construction procedures to ensure violations of the state water quality standards will not result from the dredge or fill operation.

The Water Quality Division has assumed primacy for all delegable Construction Management Assistance Grants functions. The Division also provides input to the Wyoming Farm Loan Board which provides funds to municipalities for water and sewer system improvements.

The Division has assumed primacy for the NPDES program and is responsible for permits issuance, compliance monitoring and permit enforcement.

The Water Quality Division has assumed primacy of the Underground Injection Control Program and administers groundwater protection program.

The Division has divided the state into four districts for engineering and surveillance activities with engineering staff personnel responsible for implementing assigned tasks in the respective areas. The range of duties and responsibilities assigned to the engineering section includes:

1. Plan and specification reviews for all proposed public water supply, wastewater and land application of wastewater projects.

2. Operation and maintenance inspections of waste treatment facilities and public water supplies.

3. Reconnaissance inspections of industrial facilities.

4. Complaint inspections of facilities suspected of violating water quality standards or rules and regulations.

5. Preparation and documentation of enforcement data for necessary legal actions.

6. Cooperative efforts with the various public and private entities dealing with either existing or proposed facilities.

7. Aid the 208 planning agencies concerning the policies and procedures of the Division.

8. Review of Environmental Impact Statements on on-going projects in their respective areas.

9. Respond to oil and hazardous substances spills to ensure proper control, containment, cleanup and disposal.

10. Reviewing and upgrading regulations as necessary.

VI. SITE-SPECIFIC SUCCESSES

Prior to 1972, the North Platte River system in Wyoming was significantly impacted by municipal, industrial and non-point source (NPS) pollutants. Despite a tremendous increase in population throughout the North Platte River valley and additional industrial development, water quality in the North Platte River has improved since 1972 and major progress continues to be made.

By 1988 all municipalities discharging wastewater into the North Platte River will be in compliance with state and federal wastewater discharge standards. Prior to passage of P.L. 92-500, which authorized the NPDES and CMAG programs, municipal discharges were a major pollution source in the North Platte drainage. By 1988 the cities of Encampment, Riverside, Saratoga, Casper, Mills, Evansville, Glenrock, Douglas, Glendo, and Guernsey will all meet secondary wastewater treatment standards. Most of the improvements to these municipal wastewater treatment systems was funded through the CMAG program.

Since the mid 1970's, industrial discharges in the Casper area have been improved due largely to the NPDES program. Petroleum refineries in the Casper area were responsible for groundwater and surface water contamination from leaky facilities. To date, all the refineries in Casper have improved their operations. A significant amount of petroleum products causing contamination to groundwater and the North Platte River is being intercepted and recovered.

The Department of Environmental Quality has initiated a cooperative program with the University of Wyoming, Wyoming Conservation Commission and the U.S. Department of Interior, Bureau of Land Management to develop and implement grazing systems to improve and maintain riparian areas. The 208 program generated concern for NPS pollution and provided the initial funding for the riparian management program. The cooperating agencies are in the initial phase of developing riparian management systems for public lands in the Bates and Sage Creek drainages. These two streams were identified as significant contributors of sediment to the North Platte River. By 1988, the riparian programs on Bates and Sage Creeks are expected to be well underway.

The overall change of water quality during this period will result in the attainment of all designated water uses of Wyoming's main river system.

VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Special State Concerns Over Past Decade:

Salinity levels in the Colorado River have been recognized as a major interstate and international problem. Wyoming is one of seven states involved in the Colorado River Salinity Control Forum and efforts to address the salinity issue activities include the establishment of water quality standards and a plan of implementation to meet the standards as the individual states proceed to develop their appropriations and the Colorado River Compact. Programs to limit salinity include NPDES limitations on point discharges, construction of salinity control projects, implementation of non-point source management practices, and on-farm irrigation management.

Part B. Major Remaining Problems:

- ____ - Surface water quality maintenance and/or quantity assurance in light of population and industrial growth.
- X - Groundwater resource quality protection or supply assurance.
- X - Identification and control of toxic pollutants from industrial and non-point sources.
- X - Municipal wastewater plant operation, maintenance, and rehabilitation.
- X - Pollution arising from abandoned industrial and/or mining facilities.

AGENCY PREPARING REPORT: Department of Environmental Quality
Water Quality Division

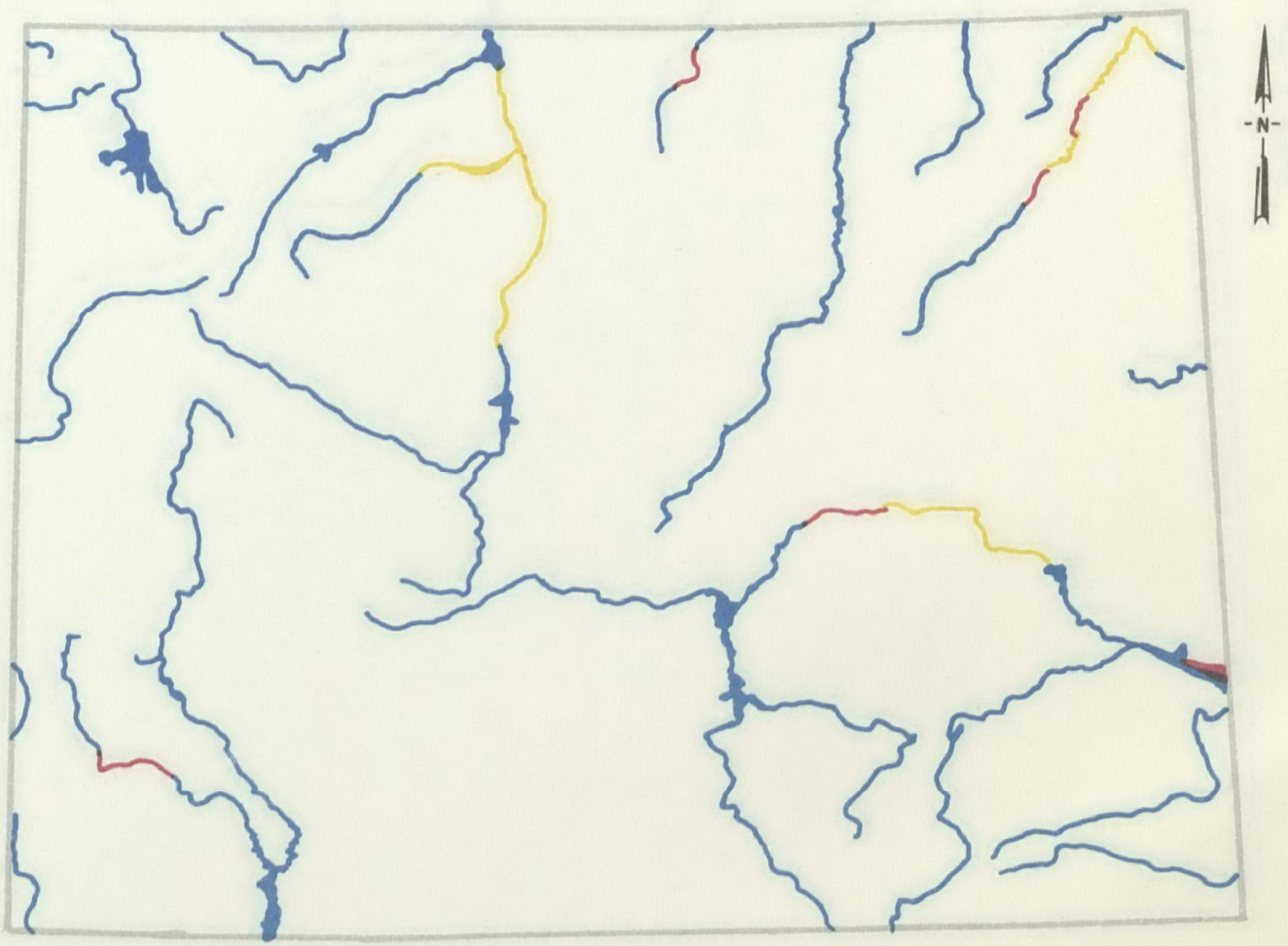
CONTACT PERSON & PHONE #: Dave Hogan or Mike Carnevale (307) 777-7781

DATE: September 7, 1983

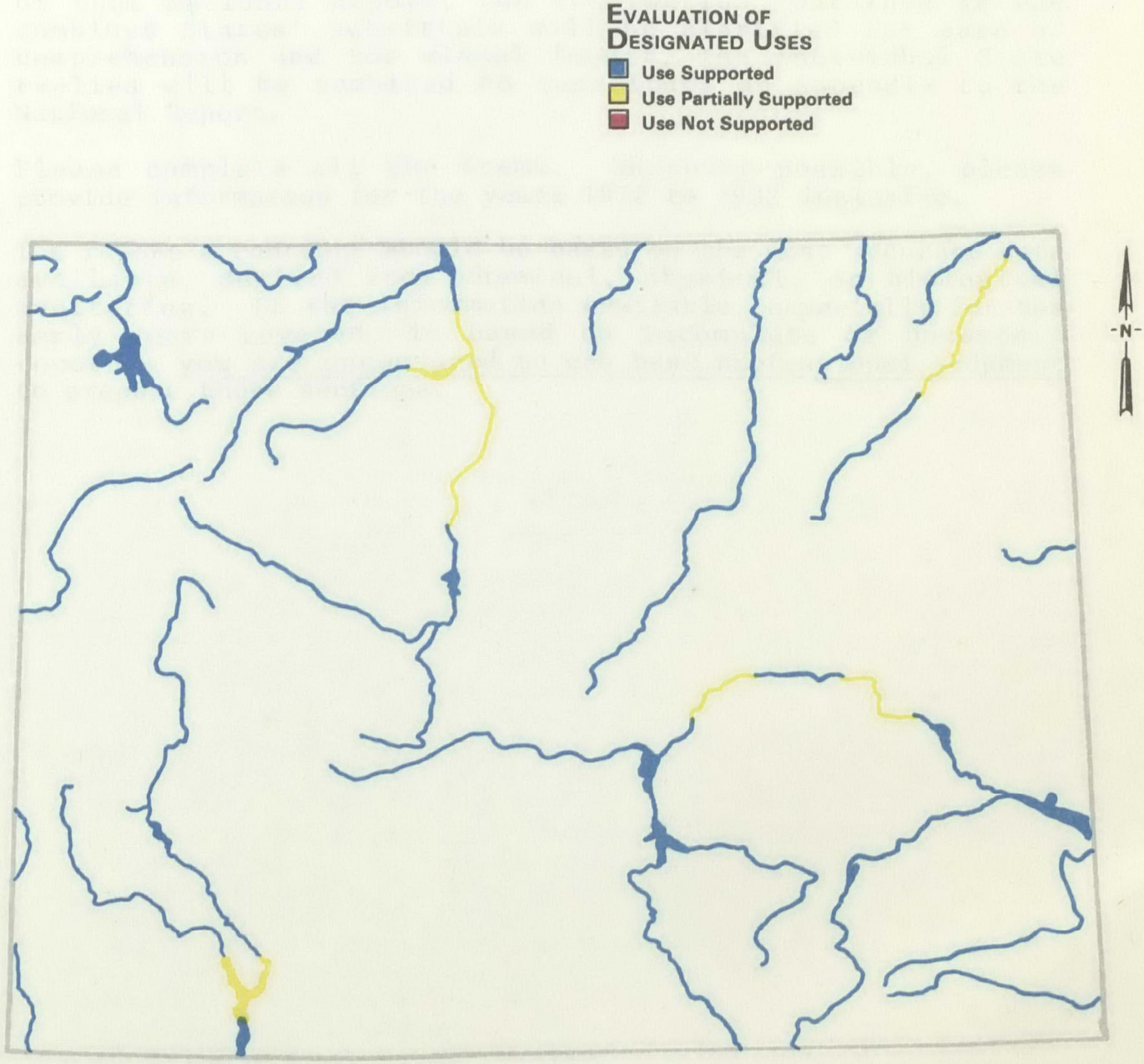
WYOMING
1972

EVALUATION OF
DESIGNATED USES

- Use Supported
- Use Partially Supported
- Use Not Supported



WYOMING
1982



INSTRUCTIONS AND DEFINITIONS FOR "STEP" REPORT ON PROGRESS IN THE CLEAN WATER PROGRAM

INTRODUCTION

The following form is designed to produce an evaluation of your State's progress in the clean water program. Its focus is on the relative condition of the waters -- in both streams and lakes -- rather than on programmatic activities.

The STEP Reports prepared by each State will be used to prepare a National State/EPA Report to Congress on Progress in the Clean Water Program over the past decade. In the preparation of that National Report, the information contained in the combined States' submittals will be clarified for ease of comprehension and for visual impact. The individual State replies will be combined to constitute an Appendix to the National Report.

Please complete all the items. Wherever possible, please provide information for the years 1972 to 1982 inclusive.

The report's contents should be based on the most accurate data available, derived from chemical, physical, or biological monitoring. If the information available, especially for the early years covered, is based on incomplete or uncertain records, you are encouraged to use best professional judgment to prepare those sections.

SECTION I. ATLAS

This section is a brief description of the hydrologic and geographic conditions in your State. Most of the entries are self-explanatory. Please enter 'N.A.' for any item that is Not Applicable.

For River and Stream Miles, report first the total number of river and stream miles in your state. Then enter the number of miles that comprise Border Rivers and Streams, i.e. those that lie along a border with one or more adjacent states. If you have an entry for Border Rivers, please use the space provided to report the names and shared mileage for each such waterway.

In reporting on the waters in impoundments, please report either the stream channel miles or the lake acres, but not both.

DEFINITIONS

o State Population: Numbers should be drawn from census data.

o River Systems/Basins: Most states subdivide their total surface waters into major hydrologic drainage basins or river systems. Record here the number of such units within your state.

o Lakes and Ponds: Natural or man-made bodies of water that are publicly owned and that could be classified under state water quality standards.

o Marshes/Wetlands: As defined by your State (in statute or regulation).

o Coast: Include here ocean, Gulf, or Great Lakes coastal miles.

SECTION II. AMBIENT WATER QUALITY

In this section, you are asked to categorize the proportion of waters in the state that are supporting the uses for which they were designated in 1982. This means that if a river was designated for agricultural use in 1972, but has since had its use designation changed to recreational, you should be expressing the extent to which it met that recreational use in both 1972 and 1982.

Your categorization of the extent of use support is to be based on a combination of Chemical and Biological Data and on Direct Observation/Professional Judgment. The definitions to be used in the categorization will be found below.

Part A. deals with Streams and Rivers.
Item 1.a. asks for a count of the number of Miles Assessed in 1982.
1.b. asks for the Number of Miles Designated for Uses More Stringent than Fishable/Swimmable (e.g. public water supply);
1.c. for the number of Miles Designated for Uses Less Stringent than Fishable/Swimmable (e.g. navigation or agriculture).
["Fishable/Swimmable" is defined here as "providing for the protection and propagation of fish,shellfish, and wildlife, and for recreation in and on the water."]

In each case, it is the highest use for which the waters are designated that should be reported.

The entry for 1.d. should be the number of Miles Monitored.

The definitions for both 'Assessed' and 'Monitored' -- as used in this report -- will be found below.

Item 2 is a table in which you are to evaluate the extent to which streams and rivers are supporting, partially supporting or not supporting their uses as designated by the state. If a river has been designated for a specific use and for other uses requiring less stringent criteria, it is the extent to which it supports the highest designated use that should be reported.

The miles shown in the Total column in this table should be the same as the number of miles reported as being assessed (in Item 1.a.). It is recognized that for 1972, both chemical and biological monitoring data may be limited for a relatively large number of miles. In those cases where professional judgment does not allow evaluation of the extent of use support, these miles should be entered in the "Unknown" column. For 1982, however, miles entered in the "Unknown" column should be as low as possible.

Item 3 displays the Changes In or Within Categories of Use Support between 1972 and 1982. If some river miles have shown improvement in the degree to which they meet specific chemical criteria or have had some degradation of quality but remain in the same category of Supporting, Partially Supporting, or Not Supporting their Designated Use, they should be entered in the column labeled "Within Category".

Streams that have experienced changes in quality that resulted in shifts in category, for example from Partially Supporting a use to Supporting the use, or from supporting designation for Minimum Aquatic Life to supporting a Warm Water Fishery use, would be entered in the column labeled "Changes in Category."

The separate entries in the 2 columns are to be added for preparation of the pie chart, which should thus have 4 wedges: 1 for Miles Improved, 1 for Miles Degraded, 1 for Miles Maintained, and 1 for Unknown.

Part B. deals with the Publicly Owned Lakes, Ponds and Reservoirs as defined in Section I. The directions for its completion are parallel to those for Part II.A. for Streams and Rivers.

Part C. deals with Estuaries and Oceans. The directions for its completion are parallel to those for Part II.A. Your report can address either Estuaries or Oceans or both, depending on which waters have Use Designations and the data available for evaluating Use Support. Be sure to specify the units of measurement: Square Miles (area) for Estuaries; Miles (linear) for Oceans.

Part D. deals with the Great Lakes and is to be completed in the same manner as Part II.A. Its units are linear Miles.

Part E.

Chart 1.a. In this pie chart, the total pie is the stream or river miles that are not fully supporting their designated uses in 1982; it includes miles that are Partially Supporting their use as well as those Not Supporting the designated use. The wedges are the percentages that are not supporting their use because of particular types of pollutant sources. If more than 1 type of source is impairing use support on a given waterway, the distribution of miles reported here should be apportioned by use of professional judgment; if no objective determination is possible, the impacts should be apportioned equally among the sources

Use the following Legend to identify each section of the pie:

M = Municipal	O = Other (includes Natural)
I = Industrial	U = Unknown
NP = Non-Point	

Charts 1.b., 1.c.,& 1.d. The total pies are the lake and reservoir acres, estuary square miles or ocean miles, and Great Lakes miles that are not fully supporting their designated uses. The wedges should follow the same legend as shown in Chart 1a. above.

Chart 2. In this chart, you should identify the major water quality problems caused by each of the specified pollution sources shown in Charts 1.a., 1.b., 1.c., and 1.d. that are impairing support of designated uses. Use an 'x' in the appropriate boxes to reflect the most significant or frequent problems. Then rank the 2 most serious problems in the last column by writing the abbreviations of the parameters of concern. If you mark the box labeled "Other", please include a footnote to specify the parameter(s) of concern.

Beneath the chart, report the Number of River Miles, the Number of Lake Acres, the Number of Estuary Square Miles, and the Number of Ocean or Great Lakes Miles Affected by Toxic Pollutants. Toxic Pollutants are the 129 Priority Pollutants.

Part F. Using the maps provided, display the information shown in Table II.A.2. for 1972 and for 1982 according to the following legend:

BLUE = Use Supported	RED = Not Supported
YELLOW = Partially Supported	GREEN = Unknown

The maps do not display all the waterways reported as assessed. You can add some rivers to the maps if these would be critical to a reader's understanding of conditions in the state's key waterways. If you find the maps provided unworkable in terms of accurately depicting your State's waters, you may substitute another map. In this case, please be certain its scale is shown.

DEFINITIONS

o Miles Assessed: Miles where information on water quality can be derived from monitoring, intensive surveys, creel surveys, reports from Fish & Wildlife personnel, etc. [Professional judgment may be necessary for interpreting such information.]

o Miles Monitored: A subset of the above; miles for which there is regularly repeated chemical or biological sampling and where trend data is available.

o Evaluating the Extent to Which Waters Support Designated Uses: The degree to which uses will be shown to be supported or impaired will be based on a combination of chemical information, biological information, and direct observation/professional judgment. These are explained briefly below and more fully on P.6

Chemical Information:
Ambient chemical data representing water column, sediment and tissue samples, should be used in the chemical evaluation. Data collected through routine fixed station monitoring, as well as intensive surveys or special studies (when collected under representative conditions) should be included in these analyses.

The analyses should be conducted for those parameters appropriate for the designated use being evaluated. Natural background levels of the parameter and flow should be taken into account along with the results of the analyses when assigning the category of use support to the waterbody being assessed.

Biological information:
General biological surveys, fishery studies, tissue analyses, habitat analyses, creel census, capture-recapture/removal sampling and other quantitative biological measures should be used in the biological evaluation. Data on the fish, macro-invertebrate, and periphyton populations should be evaluated when available. Survival, propagation, production, dispersion, community structure and species diversity should be taken into account when assigning the category of use support to the waterbody being assessed.

Professional Judgment/Direct Observation:
Qualitative information, such as direct observation of the "use" can be factored into use support evaluations. Examples include the observations of fish and wildlife professionals concerning the abundance and species of fish being caught and the judgment of water pollution control staff, based on such things as known stream loadings, modeling efforts, and other direct and indirect findings not demonstrated by the data above.

In some cases, the three types of information may not be entirely consistent, and the State will need to apply careful judgment to complete its evaluation. For instance, a river may be attaining the State water quality criteria based on routine ambient monitoring (i.e. primarily chemical information), but there may be a number of fish kills. In this case, the State would probably want to place this river in the "does not support" or "partially supports" category, depending on the severity and suspected cause of the fish kills.

A DESCRIPTION OF THE APPROACH YOU USE TO CATEGORIZE THE EXTENT TO WHICH WATERS SUPPORT THEIR DESIGNATED USES SHOULD BE APPENDED TO YOUR REPORT. THIS SHOULD NOTE THE SOURCES FOUND HELPFUL FOR ALL THREE TYPES OF INFORMATION.

CRITERIA FOR EVALUATING THE SUPPORT OF A DESIGNATED USE

SUPPORT OF DESIGNATED USE	CHEMICAL INFORMATION	BIOLOGICAL INFORMATION	DIRECT OBSERVATION/ PROFESSIONAL JUDGEMENT
Waters support designated use	Standard is exceeded in 0 - 10% of the analyses and the mean measured value is less than the standard. Pollution severity: none.	Data show that the waterbody is fully supporting the designated aquatic life community (in all respects described on previous page).	Direct observation shows that the designated use is supported, or professional judgement indicates that there is no reason for the use not to be supported.
Waters partially support designated use	Standard is exceeded in 11 - 25% of the analyses and the mean measured value is less than the standard; or standard is exceeded in 0 - 10% of analyses and mean measured value exceeds the standard. Pollution severity: minor.	After evaluating data, there is some uncertainty as to whether or not a balanced aquatic life community is fully supported. For instance, some species may not be able to propagate in the stream, although a put-and-take fishery may exist.	Direct observation shows that the use exists in the waterbody but professional judgement suggests that the the use is not supported at a maximum level (e.g. citizen complaints on record, fishing success declining).
Waters do not support designated use	Standard is exceeded in more than 25% of analyses and mean measured value is less than the standard; or standard is exceeded in more than 11% of analyses and mean measured value exceeds the standard. Pollution severity: major.	Data show that the waterbody does not support the designated aquatic community. For example, the aquatic community is definitely imbalanced and/or severely stressed; few or none of the expected species exist in the waterbody.	Direct observations show overt signs of obvious use impairment (e.g. severe or frequent fish kills), or provide no evidence that the use exists. Professional judgment suggests that the use can not be supported due to known or suspected water quality impacts.
Unknown	No representative data are available for assessment.	Limited or no data are available.	Limited or no direct observations.

SECTION III. POINT SOURCES

Part A. Municipal

This Part is not strictly limited to municipal point sources; it includes all domestic wastewater systems, including those that are non-discharging.

Item 1. Level of Wastewater Treatment Provided to State's Population:

This graph is designed to graphically depict the levels of wastewater treatment provided to various proportions of the state's population. The totals for each of the 2 bars should be the total population of the state in the year specified.

First, a vertical bar representing the state's total population should be constructed for each of the two reference years. These bars should then be sub-divided beginning at the bottom (or x-axis) to represent the incremental population being served. The units of sub-division are reflected in the legend for the graph. The number of people included in each section of the bar should be shown within or adjacent to that section.

It is likely that an estimate will be necessary to determine the proportion of the state's population not served by wastewater systems and requiring or not requiring systems in 1972.

In light of limited data availability, it may be necessary to perform the initial analysis for the entire graph based on wastewater flows and then convert to population estimates by assuming a per capita discharge rate (gallons per capita per day) and adjusting as appropriate where there are heavy industrial contributions to municipal facilities. If this approach is used, please specify the assumed per capita rate in a footnote.

Item 2. Annual Population Equivalent BOD Loads Generated and Discharged by Municipal Treatment Facilities Compared to 1982 Load Projections:

This graph is intended to depict the changes in BOD Loading of waterways (between '72 and '82) resulting from changes in Municipal Wastewater Treatment capabilities. It includes an entry for Projected BOD Load assuming actual population increase but no improvement in treatment since 1972.

Population Equivalents should be derived by dividing Pounds of BOD per day by 0.2.

Load Generated (=Influent Loading): Most states should have reasonably reliable operating data beginning in the mid-'70's, at least for their significant facilities (See Definitions under Section III. below for meaning of this term). For this analysis, it is recommended that the focus be on significant facilities, with appropriate proration made for smaller facilities. Thus, unless better data is available for 1972, influent loadings should be determined from operating reports for 1982 and the earliest year for which data are available (e.g. 1977). A straight-line projection should then be assumed to estimate influent loading for 1972.

Load Discharged (=Effluent): Again focusing on significant facilities and prorating to account for other facilities, determine the total discharge loading for the state in pounds per day based on actual operating records. Unless reliable data are available for 1972, estimated discharge loadings for that year should be calculated by applying a treatment factor for various levels of treatment (raw = 0% removal; primary = 30% removal; secondary = 70 to 85% removal; AST and AWT = 90 to 95% removal; no-discharge = 100% removal [also see definition of "no-discharge" below]) to the influent loading, based on the population served by each level of treatment as shown in Graph III.A.1.

Projected Load Discharged: After estimating the 1972 discharge loading, a projection to 1982 should be made, using 1982 flows and 1972 treatment levels. This will demonstrate the discharge loading that would have occurred in 1982 as a result of increased influent loading if treatment had not been improved.

Item 3. Significant Municipal Facility Compliance:

a. Facilities with Permits: For 1972, report the number of significant facilities that were receiving either Federal or State permits, or were otherwise recognized and authorized to discharge by the State or EPA. See definition of "Significant Facility" below. For 1982, report separately the number of such facilities on interim and on final permits.

Facilities Meeting 1982 Permit Requirements: Of the total number of facilities above, the number that were attaining treatment levels assigned or required as of 1982 should be given for each of the reference years. For 1972, this determination will probably require application of Professional Judgment. For 1982, each facility should be compared to the requirements of its permit -- whether interim or final.

Percentage of Facilities for Which Permit Requirements Being Met: The percentage that the second row is of the first row above.

Percentage of Flow for Which Permit Requirements are Being Met: For each of the reference years, estimate the percentage of the total flow which is served by those facilities identified above as meeting permit requirements in effect in 1982. If actual flow data are not available, this estimate may be based upon a comparison of the design flow for those facilities meeting permit requirements to the total municipal wastewater flow in the state.

Facilities Needing Upgrading: For each of the reference years, the number of facilities which require upgrading in order to meet the requirements of the Clean Water Act should be reported. This will include all facilities which are not capable of meeting the limits of secondary treatment or more stringent limits if required to support designated uses or meet water quality standards.

To the right of the table, enter the Total Number of Municipal Permits in Effect in 1982 (for both significant and other facilities).

b. Significant Municipal Facilities Meeting and Not Meeting Permit Requirements

For each of the years shown, sub-divide the pie chart to display the percentage of facilities in compliance vs. those in significant non-compliance with their permit requirements.

Part B. Significant Industrial and Other Non-Municipal Facilities' Compliance:

Both a. and b. of this Part should be completed using the same instructions as for Part III.A.3. above.

DEFINITIONS

o Served by Wastewater System: Wastewater discharged to conventional sewerage system.

o Require system: State residents for whom septic systems are not an adequate method of wastewater discharge and who therefore need a sewerage system.

o Secondary treatment is here defined to include facilities with waivers to discharge to the ocean under §301(h) of the Clean Water Act.

o No-Discharge Facilities: the same as some States' "non-discharging" or "non-overflowing" facilities.

o Significant Facilities:

For Municipal Facilities: those discharging 1 MGD or more.

For Industrial Facilities: Set aside the discharges from all power plants in the state. Working with a listing of all other non-municipal dischargers, add together the sum of the design flows from all the facilities. Then, starting with the facility with the largest design flow, add together the design flows of all the facilities until you reach 95% of the total flow. Calculate too the 96th, 97th, 98th, and 99th percentile of total flow. Use the number of facilities reflected by whichever of these percentiles (95 - 99) that best reflects the most important group of non-municipal wastewater dischargers. Then add the number of power plants back into the figure of significant facilities.

These numbers should serve as a minimum. If there are facilities in the State that are significant because of the toxicity of their discharge (even though small in volume) or because, for example, they discharge into specially protected receiving waters, they too should be included in the count of significant municipal or non-municipal facilities.

o Compliance: Facilities that have been completed, are meeting their 1982 permit requirements or are not in "significant noncompliance" with those requirements, whether interim or final.

o Significant Noncompliance: For purposes of this report a new definition of "significant noncompliance" has not been developed. Instead, the report will use a modification of the U.S. Environmental Protection Agency's September 1982 proposed definition. This definition has three main categories: violations of requirements resulting from previous enforcement actions (such as a consent decree or administrative order), violations of compliance schedules, and violations of permit effluent limits. The latter are defined by magnitude and/or duration of the violations. The complete text of the E.P.A. definition is attached.

The modification of EPA's definition relates to the number of exceedances of monthly average limitations. For the purposes of this report, significant noncompliance will be said to occur for Acute Pollutants if the TRC is exceeded in 2 months out of 3. For Chronic Pollutants, significant noncompliance is defined as exceedance of the TRC in 8 months out of 12.

MODIFIED VERSION OF U.S. ENVIRONMENTAL PROTECTION AGENCY'S
September 1982
DEFINITION OF SIGNIFICANT NONCOMPLIANCE IN THE NPDES PROGRAM

The designation of "significant noncompliance" indicates a violation is of sufficient magnitude and/or duration to be considered among the regulatory agency's priorities for regulatory review and/or response.

The categories of significant noncompliance are: violations of requirements resulting from previous enforcement action, violations of permit effluent limits, and violations of permit compliance schedules. Any unauthorized discharge or bypass considered significant by the NPDES Program Director (or Designee) will also be reported as significant noncompliance. Additionally, the Director of an NPDES program may designate any instance of noncompliance which he considers to be significant.

I. Violations of Previous Enforcement Actions

Violation of a requirement imposed in an enforcement action such as a consent decree or administrative order, except as noted below, is considered to be significant noncompliance.

II. Violations of Compliance Schedule

Schedule violations, including portions of 309(a)(5)(A) orders which pertain to compliance schedules, can be classified as "significant" for both POTW's and non-POTW's. Assessing the status of compliance of non-POTW's is a relatively straightforward matter because there are fewer variables involved in their construction programs than for POTWs. For those POTWs which rely upon the Federal construction grants process to assist in funding, the entire grant process (including planning, design,

and construction) must be reviewed to determine if the municipal facility is making acceptable or unacceptable progress. If a POTW facility is making unacceptable progress, its noncompliance is considered significant. For POTWs not in the Federal grants process and non-POTWS, schedule violations which have not been resolved (returned to compliance with schedule requirements) within 90 days are considered to be significant noncompliance.

III. Violations of Permit Effluent Limits

Cases of significant noncompliance for permit effluent limits are defined according to the magnitude and/or duration of the violation. Effluent violations should be evaluated on a parameter-by-parameter and outfall-by-outfall basis. Three subcategories have been created for effluent violations, as follows:

a. Effluent Criteria for Single Events and Short-Term Limits

Single event violations (i.e., of daily maximum limits) and short term violations (i.e., of seven-day averages) are discretionary with respect to their designation as significant noncompliance. Generally, however, any permit violation is significant which has the potential to cause or has actually caused adverse environmental effects, (e.g., fish kills, oil sheens) or poses a human health hazard (e.g., spills of carcinogenic, radioactive or mutagenic substances). The Director also may consider the significance of violations detected during compliance inspections by using a single event criterion.

b. Effluent Criteria for the Magnitude and Duration of Monthly Average Permit Limits

Significant noncompliance for monthly average limitations is based on exceeding Technical Review Criteria (TRC) (magnitude) for a specified time period (duration). The TRC's are for two groups:

Group I - Inorganic and Oxygen Demanding Pollutants (such as BOD, COD, TSS, nutrients) TRC=1.4

Group II - Toxic Pollutants (such as heavy metals, cyanide, and organics) TRC=1.2

The duration is evaluated for any consecutive six months. For all permittees, significant noncompliance is exceedance of the TRC for the monthly average for any <u>two</u> months in a <u>three</u> month period.

c. Effluent Criteria for Chronic Violations

In some cases, a permittee will constantly violate the monthly average permit limit but not exceed the TRC. These chronic violations would be considered significant noncompliance if the monthly average permit limit were exceeded any <u>eight</u> months in a <u>twelve</u> month period.

GROUP I - Inorganic and Oxygen Demanding Pollutants TRC=1.4

Oxygen Demand

Biochemical Oxygen Demand
Chemical Oxygen Demand
Total Oxygen Demands
Total Organic Carbon
Other

Solids

Total Suspended Solids (Residues)
Total Dissolved Solids (Residues)
Other

Nutrients

Phosphorus Compounds
Nitrogen Compounds (except ammonia)
Other

Detergents and Oil

MBAS
NTA
Oil and Grease
Other detergents or algicides

Minerals

Calcium
Chloride
Fluoride
Magnesium
Sodium
Potassium
Sulfur
Sulfate
Total Alkalinity
Total Hardness
Other Minerals

Metals

Aluminium
Antimony
Beryllium
Cobalt
Iron
Nickel
Selenium
Silver
Thallium
Vanadium

Group II - Toxic Pollutants TRC=1.2

Heavy Metals (all forms)

Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Zinc

Inorganic (nonconventional)

Ammonia
Cyanide

All Organics except those specifically listed in Group I

SECTION IV. NON-POINT SOURCE POLLUTION CONTROL

Use not more than one-half a page to describe the state's Non-Point Source (NPS) problems and controls. In addition to activities funded by U.S. EPA, you should also include USDA Rural Clean Water program activities as well as any other relevant programs. Wherever possible, present quantitative information about number of stream miles or river basins affected by different sources, number of demonstration projects undertaken, etc. In the narrative, relate NPS discharges back to the proportion of use impairment shown in Part II.E.

As appropriate, your discussion can include groundwater and coastal water pollution if you consider them a NPS problem. You should categorize your nonpoint sources based on the 8 categories of NPS shown in the chart: Urban Runoff, Agriculture/-Irrigation, Silviculture, Mining, Construction, Hydrologic Modification (dams and channelization), Saltwater Intrusion, and Residual Wastes/Land Disposal.

There are two rows in the NPS chart. The first asks you to estimate both the severity and geographic extent of each of the 8 NPS categories. Your evaluations should be based on the definitions below. They will probably be based to a large extent on best professional judgment rather than hard data.

The second row of the chart seeks an identification of the pollutant(s) of primary concern from each of the NPS categories. Include as many as are applicable from the following:

C = Coliform; LoFlo = Low Flow; M = Metals; Nut.= Nutrients

OxDe = Oxygen Demanding Materials; P = Pesticides or Herbicides;

pH = Acidity/Alkalinity; Sal.= Salinity; SS = Sediments or

Suspended Solids; T = Turbidity; and O = Other.

If you display an entry labeled "Other", please use a footnote to explain the pollutant of concern.

DEFINITIONS

For Evaluating NPS Severity:
- o S = Severe = Impairment of designated use
- o M = Moderate = Some interference with designated use, but use not precluded.
- o I = Minor = Minimal effect on designated use.
- o N.A.= Not Applicable = Source does not occur in state or, if it does occur,it does not affect support of designated uses.

For Evaluating Geographic Extent:
- o W = Widespread = 50% or more of state's waters are affected by this category of NPS.
- o L = Localized = Less than 50% of waters are affected.

SECTION V. WATER QUALITY MANAGEMENT PROGRAM ELEMENTS

This section is to include a description of your clean water program over the past 10 years. If you can convey any of the information requested in graphics (in addition to those specified), please feel free to do so.

Part A. Enforcement

Item 1. Describe the state's approach to enforcement against violations of state and federal water pollution control laws and regulations for Point Source and Non-Point Source dischargers.

Item 2. Refer back to the tables in Parts III.A. and III.B. showing Compliance by Significant Municipal and Non-Municipal Facilities. Complete the Enforcement table here by counting the actions taken against those facilities (both Municipal and Non-Municipal) in Significant Non-Compliance in 1982 as reflected in those earlier tables.

For each facility, count only the most serious action taken to date. Thus, there should be only one entry per non-complying facility.

Examples of activities that would be counted in the "Pre-Administrative Action" row include the following. Actions would be counted only if they occurred subsequent to a determination that a facility was in Significant Non-Compliance.

- Technical Assistance
- Series of Letters
- Conferences
- Voluntary Compliance Schedules
- Voluntary Connection Limitations

Examples of entries in the "Administrative Action" row include:

- Cease-and-Desist Orders
- Directives
- Commissioner Orders
- Consent Orders
- Connection Moritoriums

Examples of entries in the "Judicial Action" row include:

- Referral to Attorney General
- Referral to State or County Attorney
- Civil or Criminal Penalty Assessment
- Court Orders
- Judicially Imposed Consent Decrees

While the name used by your State for a particular enforcement action may vary from that shown above, the listing should enable you to determine the appropriate category.

Part B. Municipal Facility Investment In this pie chart, display the total of the state's capital investment for municipal wastewater disposal facilities in actual dollars (i.e. do not translate expenditures to uninflated common year dollars). The wedges of the pie should be the proportions derived from the sources specified in the legend.

The "Other Federal Agency" line can be used to record funds provided by such agencies as the Department of Housing and Urban Development or the Economic Development Administration.

The entry labeled "Local Match" should reflect those local funds used to match Federal or State grant funds. The "Other Local" entry should be used -- to the extent you have the information -- to report local capital expenditures for municipal wastewater facilities that did not involve Federal or State funds.

Part C. Program Activities In one page or less, describe the activities that comprise your clean water program; this should focus on the changes in the program's emphasis over the past ten years. This discussion should be arranged in whatever form best meets your needs: one paragraph on each component of the program (e.g. planning, monitoring, permitting, emergency response, lake clean-up, public participation, operator training, etc.), an integrated text describing the various aspects of the program, or some other arrangement.

It is especially easy in this description to rely on jargon or Federal Clean Water Act section numbers. Please try to avoid doing this so that the resulting narrative will be comprehensible to a lay reader.

Inclusion of discussion of program expenditures for particular activities is optional; discussion of assumption of delegations of federal authorities is also optional.

DEFINITIONS

o Enforcement: includes all levels of enforcement activity, ranging from Pre-Administrative meetings through Administrative Orders to referrals to the judicial system.

o capital investment: money spent for facility planning, design and construction, but not for operation and maintenance.

SECTION VI. SITE-SPECIFIC SUCCESSES

Provide up to 2 examples of how water pollution control programs have resulted in improved water quality and/or improved public use of waters and/or the prevention of water quality degradation despite population or industrial growth.

These examples can be presented in the form of narrative or in graphics (e.g. bar charts showing reductions in pollutant loadings from a particular category of discharger, tables, etc.). If you choose the narrative form, your discussion could include: past conditions (i.e. historical background on water quality conditions and pollutant sources), water pollution control actions taken, and results of those actions in terms of water quality and/or increased use of the waters.

Each example should deal with a specific water body (or interconnected group of water bodies -- a major river and its tributaries, for example) or with a particular geographic portion of the state.

Use this section to tell those stories you are proudest of, but do it in one page or less.

SECTION VII. SPECIAL STATE CONCERNS AND REMAINING PROBLEMS

Part A. Past progress in issues of special concern in your State, not otherwise adequately reflected in previous sections. Examples of issues discussed could include:

Groundwater	Wetlands Protection	Toxic Pollutants
High Resource Waters	On-Site Disposal	Drinking Water
Development Pressures	Interstate Problems	Quantity-Quality etc.

Part B. Significant water pollution problems still to be resolved in your State.

Item 1 Check each of the specified issues that you foresee as a significant problem for your state's water pollution program in the years ahead.

Item 2. The remainder of the page should be used for a narrative discussing additional problems or expanding upon those listed in Item 1. Problems covered here could include, for example, non-point source control, lake management, combined stormwater runoff, etc.

This section should not be viewed as a "shopping list" specifying funds needed for specific program activities.