STATE OF MAINE

NONPOINT SOURCE POLLUTION MANAGEMENT PLAN

Prepared by the

Maine Department of Environmental Protection

Bureau of Water Quality Control

For the U.S. Environmental Protection Agency

as a status report of compliance with

Section 319 of the Clean Water Act

November, 1989

MAINE

NPS MANAGEMENT PLAN

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INTRODUCTION

1.1 EXECUTIVE SUMMARY

Nonpoint source (NPS) pollution is now acknowledged to be a major source of water use impairment to Maine surface water and groundwater resources. The recently completed assessment on (NPS) pollution indicates that nonpoint-related impacts occur in every drainage basin in Maine. However, the types and extent of water quality problems associated with these sources of pollution vary considerably among basins.

The Assessment further indicates that overall, the major causes of use impairment to surface water from nonpoint sources are siltation and turbidity, nutrients, and flow alteration. The major causes of groundwater contamination are pollutants originating from landfills, petroleum product storage or transport, and human waste disposal systems.

To respond to Maine's various NPS pollution problems in an orderly and effective manner over the next four fiscal years and beyond, management program objectives and action plans that increase the efficiency of federal and state nonpoint source controls have been developed. Achieving visible water quality improvement or protecting high-quality waters from degradation will be accomplished using one or a combination of six management programs: information and education, financial assistance, technical assistance, monitoring and evaluation, enforcement, and continued planning. Although Maine's program will utilize all six elements, initial program initiatives will focus on the information & education and technical assistance components to

control NPS pollution. Future efforts will increasingly focus on enforcement actions based upon the relative threats of pollutants and the vulnerability of the water resource. Financial assistance, monitoring & evaluation components will be conducted as funds become available.

1.2 STATUTORY BASIS AND PROCESS

The 1987 Amendments to the Federal Clean Water Act (CWA) focus on the development and implementation of programs to control nonpoint sources of water pollution, which are typically diffuse and which do not result from a discharge at a specific, single location such as a pipe. NPS pollution has been defined by the U.S. Environmental Protection Agency (EPA) as:

> "caused by diffuse sources that are not regulated as point sources and normally is associated with agricultural, silvicultural and urban runoff, runoff from construction activities, etc. Such pollution results in the human-made or human-induced alteration of the chemical, physical, biological and radiological integrity of water. In practical terms, NPS pollution does not result from a discharge at a specific, single location but generally results from land runoff, precipitation, atmospheric deposition or percolation...."

To meet the goals of the CWA, control programs will be established through the development of the State of Maine Nonpoint Source Assessment Report, the State Nonpoint Source Management Program, and the State Clean Water Strategy. The Assessment Report identifies the nature and extent of water quality problems caused by NPS pollution. The Management Program provides an overview of the State's NPS control programs and indicates the State's intentions for addressing NPS problems in conjunction with point sources over the next four fiscal

years and beyond. And the State Clean Water Strategy describes how the State will bias or focus its implementation programs in an integrated fashion to efficiently address problems in "targeted" bodies of water worthy of special attention.

Maine's surface and groundwater quality was assessed (see Nonpoint Source Assessment Report or the Maine 1988 Water Quality Assessment 305(b) Report) to (1) identify impaired waters needing pollution prevention or restoration, (2) identify threatened waters needing protection, and (3) identify deficiencies in water quality information which may serve as the basis for ongoing or future water quality data collection activities. The six steps used in identifying NPS problem areas to surface water during the Assessment process were to:

a. Obtain and utilize existing data or water quality information;
b. Evaluate the quality or reliability of data and information;
c. Designate the surface waters of Maine into "waterbodies" to be used for planning purposes;
d. Identify affected waters which cannot attain or maintain water quality standards or support designated use or uses due to water pollution;
e. Identify high quality waters where potential degradation from NPS due to proposed or actual changes in cultural activities is a threat; and
f. Identify the cause(s) of impairment and the source(s) of pollution.

The Maine Nonpoint Source Pollution Management Plan is a strategic, multiyear action document which will involve "targeting" or identifying those water resources which would create the greatest

public benefit from protection or restoration activities. The long list of impaired surface waterbodies and groundwaters identified in the Assessment Report will be shortened, creating a subset of problem areas by evaluating the level of risk or threat created by an NPS problem and by evaluating the opportunity for problem abatement.

The process for identifying Best Management Practices (BMPs) and NPS control programs that will be used as part of the Management Program was also incorporated into the Nonpoint Source Assessment process and the waterbody targeting process to gain broader public input. Over 300 individuals and organizations were contacted during the Assessment process regarding specific nonpoint sources that they may have observed. Each was asked his or her opinion of specific best management methods and programs that were believed to be appropriate in resolving local problems.

In addition to NPS Advisory Committee and public review of technical standards, BMPs are routinely evaluated by the Maine Department of Environmental Protection (DEP). The Department has continually evaluated and revised its own rules and policies, and urges other federal and state agencies to do the same with their own standards.

SECTION 2

PLAN FOR CONTROL OF NPS POLLUTION IN PRIORITY WATERS

2.1 PROCESS AND CRITERIA FOR PRIORITIZING AND IDENTIFYING PRIORITY WATERS FOR NPS POLLUTION CONTROL.

The combination of high costs of water quality projects and limited State financial resources creates a condition in which only a limited number of projects may be planned, funded, and implemented in a reasonable time period. This requires that the limited resources be applied to those waterbodies where the most impact on the impairment can be demonstrated and where the greatest public benefits can be realized.

There are numerous agencies at all administrative levels with water quality interests and program authorities. An individual agency, because of its enabling legislation, may have unique management priorities and goals for water quality. For example, a municipal water district and a state wildlife management agency would both be interested in water quality, but for different reasons.

To increase the combined effectiveness of individual agency efforts, DEP will lead an initiative to prioritize the existing lists of impaired and threatened bodies of water (See Appendix A). This prioritized list will serve to:

a. Aid in the establishment of a clear State policy with respect to NPS pollution sources;

b. Allow agencies at all administrative levels to shift programs, if necessary, to make them compatible with State priorities;

c. Create opportunities for Section 319 funds to be passed through DEP to other agencies by way of contracts or other cooperative agreements; and

d. Provide justifications for federal agencies that must demonstrate compatibility with State programs when competing for federal funds.

To accomplish this task, a team of interested and qualified parties will be assembled. An initial meeting was held on November 8, 1989, with the following organizations invited:

Maine Department of Inland Fisheries & Wildlife
Maine Soil & Water Conservation Commission
Maine Department of Economic and Community Development
Maine State Planning Office
Maine Land Use Regulation Commission
Maine Department of Marine Resources
Maine Department of Health Engineering
USDA/Agricultural Stabilization & Conservation Service
USDA/Soil Conservation Service

Additional organizations wishing to be represented may contact the Nonpoint Source Program Coordinator at DEP's Bureau of Water Quality Control.

The Department's goal is to develop an objective rating process that will rank waterbodies in numerical order. The process is expected to use three criteria:

1) Value Assessment: The values of water resources to the various agencies/interest groups will be combined to reflect one "value" score.

2) Feasibility Assessment: the financial and technical feasibility as well as the reasonableness of the timeframe will be assessed.

3) Political Support Assessment: factors such as interagency cooperation, probability of legislative sponsorship, and citizen support will be assessed.

The methodology and the prioritized list of waterbodies will be available for public review and comment as early as possible in 1990.

2.2 INTERIM LIST OF PRIORITY WATERS

The prioritization process for the waterbodies listed in Appendix A is not complete as of the release of this document. In order to develop consensus about the process, it is important that this task be accomplished by a committee of knowledgable professionals with input from other natural resource organizations. It is also important to involve the public. It is expected that this task will be accomplished by June 30, 1990.

The following is an interim list of priority waterbodies on which the Department will focus the Nonpoint Source Program. This list will be replaced by the list generated by the prioritization process discussed earlier in this section. The final list is intended to be flexible. The rankings of individual waterbodies are expected to change with changes in environmental, demographic, and political situations.

WATERBODY #	DESCRIPTOR	COUNTY
STREAMS		
128	Perley Brook	Aroostook
135-144	Aroostook River	Aroostook
140	Presque Isle Stream	Aroostook
149, 150	Upper & Lower Prestile Stream	Aroostook
152	Meduxnekeag River	Aroostook
224	Kenduskeag Stream	Penobscot
225	Souadabscook Stream	Penobscot

WATERBODY #	DESCRIPTOR	COUNTY
STREAMS		
317,318	Varnum, Wilson Streams	Franklin
320	Carrabbassett, Mill Streams	Somerset
322	Messalonskee Str	Kennebec
325	Sebasticook River	Kennebec
326	Twentyfive-mile Stream	Kennebec
333	Bond Brook	Kennebec
334	Cobbosseecontee Stream	Kennebec
411	Dead River	Kennebec
414	Little Androscoggin R.	Oxford
418	Sabattus River	Androscoggin
523	St. George River	Knox
603	Royal River	Cumberland
607	Pleasand River	Cumberland
623	Mousam River	York
LAKES		
123	Long Lake	Aroostook
124	Cross Lake	Aroostook
125	Square Lake	Aroostook
145	Madawaska Lake	Aroostook
223	Pushaw Lake	Penobscot
321	Belgrade Lakes	Kennebec
325	Sebasticook Lake	Penobscot
326	Unity Pond	Waldo
328	China Lake	Kennebec
333	3-mile, Webber Ponds	Kennebec
334	Cobbosseecontee	Kennebec
335	Togus Pond	Kennebec
410	Canton Lake	Oxford
413	Lake Auburn	Androscoggin
414	Thompson, Pennesewassee	
517	Branch, Floods,	
518	Mountainy, Graham,	
520	Philips Lakes	Oxford
522	Lake Megunticook	Knox
523	St. George River	Knox
524	Chickawaukie	Knox
527	Damariscotta Lake	Lincoln
530	Nequassett Lake	Sagadahoc
605, 606	Sebago Lake	Cumberland
623	Mousam Lake	York
MARINE		
	Casco Bay	Cumberland
	Boothbay Harbor	Lincoln
	Cobscook Bay	Washington
	Piscataqua River Estuary	York, Oxford

GROUNDWATER

Groundwater resources have yet to be incorporated into the Waterbody System. Priority waters under this waterbody category are those in the Towns of the State that are "Tier 1 Towns", as per the Growth Management Law, that do not have public water or public sewer facilities. The list will be completed by June 30, 1990.

WETLANDS

Wetland resources have yet to be incorporated into the Waterbody System. As of the time of printing of this document no wetlands have been prioritized with respect to Nonpoint Pollution impacts or threats.

SECTION 3

IDENTIFICATION OF BEST MANAGEMENT PRACTICES AND THEIR ROLE IN THE NONPOINT SOURCE POLLUTION CONTROL PROGRAM

A Best Management Practice (BMP) is a method, measure, or practice that, when installed or performed, will prevent, reduce, or correct water pollution. It is the most basic tool that landusers in Maine will be expected to use at the sites where nonpoint pollutants are generated.

The Information and Education, Technical Assistance, and Financial Assistance components of the NPS Pollution Control Program will provide the knowledge, the help, and the monetary incentives to Maine citizens who will need to install BMPs.

BMPs will be developed for each of the major Nonpoint Source Categories: Agriculture, Silviculture, Development, Resource Extraction, Transportation Facilities and Support, Chemical Use and Storage, Solid Waste Disposal, and Marine Industries. To ensure that all landusers will be treated fairly each BMP that is developed will contain as a minimum the following elements:

Definition
Scope
Purpose
Effects on Water Quality
Effects on Water Quantity
Planning Considerations
Specifications (Design Criteria)

A committee will be set up for each major Nonpoint Source Category to develop, review, and compile BMPs. BMPs will be assembled into a manual to be published by DEP.

BMPs by themselves are not rules or laws. They are the tools to be used to meet water quality goals or performance standards that will be established by DEP. The determination of which BMPs will be used in a specific situation will be made by a planning process that will be related to the nature of the activity. For example, activities such as urban development and siting of landfills currently are regulated and have specific planning requirements that have to be satisfied to obtain State permits. The planning process for these and other regulated activities will be amended to reference the proposed State BMP manual. Activities previously not regulated, or only minimally regulated (like Silviculture, for example), will have a planning process defined.

The State will establish performance standards for water quality. In the future there will be statewide standards established that would provide a minimum level of water pollution prevention for all nonpoint sources. In prioritized watersheds, where water resources are impaired or imminently threatened, plans prepared will specify the minimum number of BMPs needed to meet or exceed the established standard.

As BMPs are installed -- whether they are structural practices, management options, or manufacturing procedures -- their effectiveness in reducing pollution and improving water quality will be monitored. Information resulting from monitoring will be used to modify and prioritize BMPs as well as indicate future program directions.

In summary, the following are the specific steps that DEP will take with respect to BMPs:

a. Define BMPs for major Nonpoint Pollution Source Categories.

b. Publish a State BMP manual.

c. Establish water quality performance standards.

d. Implement planning processes for the major Nonpoint Pollution Source Categories that specify how BMPs will be applied.

e. Monitor effectiveness of BMPs and modify BMPs and delivery system as needed.

SECTION 4

STATE PLAN FOR CONTROL OF NONPOINT SOURCE POLLUTION FROM MAJOR SOURCE CATEGORIES

This section of Maine's Nonpoint Source Pollution Management Plan describes the strategies to be used to control NPS pollution. The strategies are organized first by Major Source Category. Within each category, then, the format is:

a. Identify the Lead Agencies;

b. Identify the importance of the Source Category with respect to state, regional, and local levels; identify those waterbodies with impaired water quality as a result of pollution from this Source Category;

c. Outline the Statewide strategies.

d. Focus specific strategies on targetted waterbodies.

e. Outline proposed funding options that the State may pursue.

Individual bodies of water may be impaired or threatened by more than one nonpoint source category. To avoid repeating the same strategies under each of the contributing categories, targetted strategies will be stated either under the first source category or the dominant one.

4.1 NPS MANAGEMENT STRATEGIES

4.1.1 Agriculture

a. Lead Agency:

Maine Department of Agriculture, Maine Department of Environmental Protection

b. Importance:

Statewide = Major significance as a Nonpoint Source of Pollutants

Waterbodies impaired and threatened by pollutants from agricultural activities:

The list is extensive. Please refer to the lists in Appendix C or in Section 4.3 of the Assessment Report.

c. Statewide Strategy:

(1) The State will implement a broad-based program that will focus on information and education, demonstrations in high-priority watersheds, technical assistance, financial assistance, and enforcement.

(2) Existing agencies, using new and existing programs, will provide agricultural services:

MDA - (Pesticides Control Board) Information and education
DEP - Information and education, financial assistance, licensing and enforcement
CES - Information and education, technical assistance
SWCDs - Information and education, technical assistance, challenge grants

USDA/ASCS - Financial assistance through the Annual Cost-share Program (ACP), Long Term Agreements (LTAs), and Special Projects
USDA/SCS - Financial assistance through PL-566 projects, technical assistance for conservation planning

(3) The State will use a cooperative approach, working with the farming community, agencies, and industry, to assist individuals.

(4) The State will implement a comprehensive water quality program that will integrate BMPs to control erosion, nutrients, bacteria, and pesticides and chemicals; plus assess their impacts on wetlands, surface water, and groundwater.

(5) The State will develop a regulatory water quality standards approach to respond to those situations where health and/or environmental threats and impairments pose immediate and unacceptable risks.

(6) Waterbodies known to be threatened or impaired by agricultural NPS pollution will be prioritized according to the methodology proposed in this document and targeted for application of implementation programs.

(7) The State will develop a technology transfer program.

(8) The State will review and revise Section 413 of Title 38 MRSA to make it a more effective tool for the control of agricultural discharges.

(9) The State will seek to develop cooperative agreements with SWCDs and pursue funding sources for the improvement of SWCD technical assistance capabilities with respect to pollution management.

d. **Program focus on Interim Priority Waterbodies.**

(1) Improve technical assistance capabilities by placing water quality specialists in specific field locations, based upon occurrence of priority waterbodies --

Aroostook County
Kennebec County
Cumberland County
Penobscot County
Knox County

(2) Evaluate agricultural BMPs for cropland in Aroostook County.

(3) Evaluate agricultural BMPs for animal waste management in Kennebec and/or Penobscot County.

(4) Develop statewide, baseline water quality performance standards.

(5) Develop additional standards for priority watersheds.

e. **Proposed funding options (See Section 6 for detailed discussions of how funding options work.).**

(1) State bond issue for the cost-sharing of the installation of best management practices.

(2) Fee-for-services system to support technical services for the development of water quality plans and application of Best Management Practices.

(3) Tax incentives program for agricultural operations installing Best Management Practices.

(4) Fines and penalties dedicated to increased technical assistance and cost-share capabilities.

4.1.2 Silviculture

a. Lead Agency:

Maine Forest Service, Land Use Regulatory Commission, Department of Environmental Protection

b. Importance:

Minor to moderate statewide importance as a Nonpoint Source

Moderate to high significance in specific watersheds:

River Basin	Waterbody Name	Waterbody No.
St. John	Daigle Brook	124R
	Madawaska Lake	145L
Penobscot	Dyer Brook	208R
Kennebec	Nash Brook	307R
	Wesserunsett Stream	314R
	Pine Brook	317R
	Varnum Stream	317R
	Wilson Stream	317R
	Muddy Brook	316R
	Sandy River	315R
	Jock Stream	334R
Androscoggin	Sparrow Brook	410R
	Thompson Brook	410R
Tidewater East	Machias River	510R
	Passagassawakeag R.	521R

There are no lakes, coastal waters, groundwaters, or wetlands where silviculture is documented as the cause of non-attainment at this time.

C. **Statewide Strategy**

(1) The State will implement a broad-based program for reducing NPS pollutants, which will include BMP development, training, water quality monitoring, and enforcement.

(2) The State will develop BMPs and performance standards which when implemented through planning, application, and follow-up on individual sites will protect water quality.

(3) The State will improve financial incentives for forest management and BMP implementation.

(4) The State will implement the Certified Professional Loggers Program sponsored by the Maine Forest Products Council. BMPs and water quality considerations will be integrated into this certification process.

(5) The State will conduct a comprehensive public information program for loggers, landowners, professionals, and municipal Code Enforcement Officers.

(6) The State will develop a water quality monitoring and BMP evaluation program consistent with the NPS overall monitoring program.

(7) The State will improve and increase enforcement activities in conformance with the State's new Forest Practices Act.

(8) The State will maximize technology transfer through improved relationships with other State agencies, environmental organizations, and service groups.

d. **Program focus on Interim Priority Waterbodies.**

(1) The State will conduct a diagnostic study of water quality problems in Madawaska Lake, which will include a survey of nonpoint sources in the watershed and recommendations for Best Management Practices.

(2) DEP will meet with LURC to discuss options for improving enforcement of the LURC law with respect to forest practices in the unorganized towns.

e. **Proposed funding options (See Section 6 for detailed discussion of options).**

(1) Fee-for-services system to support technical services for the development of water quality plans and application of Best Management Practices.

(2) Tax incentives program for agricultural operations installing Best Management Practices.

(3) Fines and penalties dedicated to increased technical assistance and cost-share capabilities.

4.1.3 Development (Including Construction And Urban Runoff)

a. Lead Agency:

Maine Department of Environmental Protection

b. Importance:

Major importance statewide as a nonpoint source

Critical significance in Southern and Coastal areas, and in the Central and Western Lakes regions

Waterbodies impaired by construction and urban runoff:

River Basin	Waterbody Name	Waterbody No.
St. John	St. John @ Ft. Kent	116-118R
	Perley Brook	128R
	Meduxnekeag River	152R
	Madawaska Lake	145L
Penobscot	Kenduskeag Stream	224R
	Souadabscook Stream	225R
	Penobscot R. @ Medway	229R
	Penobscot R. @ Brewer	234R
Kennebec	Wesserunsett Stream	314R
	Beaver Brook	316R
	Hardy Brook	317R
	Wilson Stream	318R
	Brackett Brook	325R
	25-Mile Stream	326R
	Mill Stream	327R
	China Lake Outlet	328R
	China Lake	328L
	Bond Brook	333R
	Penley Brook	333R
	Jock Stream	334R
	Jug Stream	334R
	Roseanne Brook	334R
	Upper Narrows Pond	334L
	Togus Stream	335R
	Togus Pond	335L
	7-Mile Stream	?
Androscoggin	Kendall Brook	406R
	Sparrow Brook	410R
	L. Andro. @ So. Paris	414R
	Sabattus River	418R

Tidewater East	Grand Lake Stream	502R
	Machias River	510R
	Passagassawakeag R.	521R
	Chickawakie Pond	522L
Tidewater West	Frost Gully Brook	602R
	Mare Brook	602R
	Songo River	605R
	Presumpscot @ So Wind.	607R
	Capisic Brook	610R
	Clark Brook	610R
Tidewater West	Long Creek	610R
	Red Brook	610R
	Stroudwater River	610R
	Phillips Brook	611R
	Saco River @ Fryeburg	613R
	Swan Pond Brook	616R
	Kennebunk River	622R
	Great Works River	625R
	Spaulding Pond	630L
Coastal Waters	Scarborough R. Estuary	700
	Casco Bay	700

All lakes that appear on the Vulnerability Index are threatened by Nonpoint Source pollution from construction and development.

c. **Statewide Strategies:**

(1) The State will develop a comprehensive erosion and sedimentation control program which will include:

- New legislation to create a statewide erosion and sedimentation control law;
- Development of model ordinances for municipalities;
- Coordination of municipal outreach through DECD and its Growth Management activities;
- Training for Regional Planning Commissions and municipalities;
- Technical assistance to same for implementation; and

- Cooperative agreements with Soil & Water Conservation Districts and/or other appropriate agencies for technical assistance and public information programs at the local level.

(2) The State will review the adequacy of the existing Title 38 MRSA Land Use Regulations and revise as necessary.

(3) The State will strengthen its enforcement, inspection, and compliance efforts:

- Train municipal Code Enforcement Officers in NPS pollution control and the implementation of BMPs;
- Increase DEP field enforcement; and
- Evaluate effectiveness of existing penalties and revise as needed.

(4) The State will integrate environmental constraints and considerations into the implementation of the Growth Management Law of 1987:

- Provide technical assistance to municipalities and Regional Planning Commissions on water quality issues as they develop their Comprehensive Plans;
- Review draft Comprehensive Plans and new zoning ordinances for consistency with the NPS Management Plan, and forward comments to DECD;
- Develop a NPS BMP handbook for local planning officials;
- Conduct an Information & Education Program.

(5) The State will develop a statewide Stormwater Management Program:

- Develop performance standards for quantity and quality of runoff from new construction; and
- Develop incentives program for retrofitting stormwater management systems to existing developments where quantity/quality of runoff water is a pollution problem or where existing developments occur in priority watersheds.

(6) The State will assist with the completion and distribution of the revised Environmental Quality Handbook.

(7) The State will develop BMPs for the subcategories of NPS pollution sources:

Highways, bridges, and roads;
Land Development;
Combined Sewer Outflows;
Urban runoff; and
Infiltration wells and basins.

(8) The State will evaluate the impacts of NPS pollution on Maine wetlands.

(9) The State will investigate increasing the number of stream gauging stations to improve freshwater flow data in order to document flushing rates of estuaries.

- Evaluate the use of wetlands for treatment of runoff
- Evaluate the impacts on groundwater of using wetlands for runoff treatment.

d. <u>Program focus on Interim Priority Waterbodies.</u>

(1) Seek to place a water quality specialist at the county level to provide technical assistance and manage an information & education program in the Casco Bay and Sebago Lake watersheds.

(2) Develop a Geographic Information System (GIS) Pilot Project in cooperation with other agencies for the Fore River watershed.

(3) Implement a phosphorus control program for Maine freshwaters, beginning with communities having Extremely and Highly Vulnerable lakes, as well as the "1st Tier" communities as per the Growth Management Law.

(4) Implement a nitrate control program for Maine coastal marine waters by developing a nitrate delivery model for estuarine watersheds and developing a nitrate allocation methodology for new development in estuarine watersheds.

(5) Evaluate the relative contributions of point vs. nonpoint sources of pollution in an estuarine watershed and develop a predictive model to be applied to other Maine estuaries.

e. **Proposed funding options (See Section 6 for detailed discussions of how funding options work.).**

(1) Use of State Revolving Fund to finance NPS pollution control projects.

(2) Use of Federal Construction Grants to finance NPS pollution control projects.

(3) Use general obligation or revenue bonds to construct regional NPS pollution control structures.

(4) Modify state permit fee structure to allow for dedicated user fees.

(5) In highly urbanized areas, explore the creation of public-private partnerships.

(6) Special Financing Districts.

(7) Impact fees.

(8) Increase enforcement in rapidly growing areas to generate funds from penalties.

4.1.4 Resource Extraction

a. Lead Agency:

Maine Department of Environmental Protection/Land Bureau

b. Importance:

Statewide = Moderate to high significance

Regional = High significance

Local = High significance

RIVER BASIN	WATERBODY NAME	WATERBODY NO.
Tidewater East	Carleton Stream	520R
Tidewater West	Royal River	603R

Although no other waterbody types have documented impairments as the result of pollution from resource extraction activities at this time, the threat of impairment to waterbodies is significant.

Mining operations in Maine generally consist of two types: sand and gravel mining, which occurs on or near the surface; and mineral or metal mining, which can take place at the surface or at extreme depths. As discussed in the NPS Assessment Report, sand and gravel operations present less of a threat to water quality than do the uses of the land after mining operations have ceased. This is usually because there is a high correlation between the location of sand and gravel mines and the occurrence of groundwater aquifers. The mining of mineral or metallic ores, however, is more complex and produces by-products with great potential for pollution.

Waterbodies currently at risk from proposed non-ferrous mining projects are:

RIVER BASIN	WATERBODY NAME	WATERBODY #
St. John River	Carr Pond	121L, 121R
	Fish River	123R, 124R
	Machias River	510R
Kennebec	Alder Pond	310L, 310R
Tidewater East	Crawford Lake	523L, 523R

Maine has two major ore belts (one coastal, one inland) and extensive ore reserves of copper, zinc, nickel, silver, and gold in these belts. The potential for expanded mining activities in the State is great.

c. **Statewide Strategies:**

Sand And Gravel, Mineral, Metallic Mining

(1) The State will develop a set of BMPs for this activity and incorporate them into the Site Location permit process.

(2) The State will develop a technical assistance package for municipalities to address non-permitted mines at the local level:

- Educational package relating gravel mining to water quality with emphasis on protection of sites after mining operations cease; and
- Training on the planning and implementation of BMPs.

(3) The State will make the proposed Erosion & Sedimentation Control Law applicable to this activity.

(4) The State will review existing programs and regulations pertinent to mining and revise, if needed.

(5) The State will coordinate rule development and permitting with the appropriate state agencies (DOC/LURC, MGS and DIF&W)

d. Program focus on Interim Priority Waterbodies.

(1) The State will develop rules for non-ferrous mining first, to accommodate the applications for state permits now under consideration. Ferrous mining rules will be developed later.

(2) The State will consolidate all rules currently applicable to this activity into one comprehensive law.

(3) The State will support the adoption of new rules prior to processing permit applications.

(4) The State will seek to include water quality monitoring and BMP monitoring by the applicants as conditions of pertinent state permits for projects in Waterbody areas listed above in paragraph 4.1.4.b.

e. Proposed funding options (See Section 6 for detailed discussions of how funding options work.).

(1) Dedicated user fees.

(2) Development exactions and impact fees.

(3) Increased fines and penalties.

4.1.5 Transportation Facilities And Support

a. Lead Agency:

Maine Department of Transportation

b. Importance:

Statewide = Moderate significance

Regional = Moderate to high significance along transportation corridors and at facilities

Waterbodies impaired and threatened by pollutants from transportation activities:

Although there have been no surface waterbodies where transportation has been documented as the cause of nonattainment, specific road construction and maintenance projects do represent threats along transportation corridors.

At this time there are numerous sites around the State where groundwater resources have been contaminated by uncovered sand/salt storage piles. See the Groundwater Contamination Incidence appendix in the NPS Assessment Report.

c. Statewide Strategies

(1) The State will define BMPs for each activity. DEP and other interested agencies will assist.

(2) The State will assess the effectiveness of BMPs.

(3) The State will review/revise the appropriate regulations.

(4) The State will increase inspection and enforcement efforts.

(5) The State will continue the sand/salt remediation and building programs, the Leaking Underground Storage Program, and the Municipal Sand/salt Remediation Program.

d. Program focus on Interim Priority Waterbodies.

None indicated at this time.

e. Proposed funding options (See Section 6 for detailed discussions of how funding options work.).

(1) Bond issue for accelerating Strategy #5 above.

(2) Dedicated user fees.

(3) Development exactions and impact fees.

(4) Increased fines and penalties.

4.1.6 Chemical Use And Storage

a. Lead Agency:

Maine Department of Environmental Protection/Bureau of Oil and Hazardous Materials Control

b. Importance:

Statewide = Moderate significance

Regional = Moderate to high in coastal and southern regions

c. Statewide Strategies:

(1) The State will define BMPs for each activity.

(2) The State will assess the effectiveness of BMPs.

(3) The State will review/revise appropriate regulations.

(4) The State will increase inspection and enforcement efforts.

d. Program focus on Interim Priority Waterbodies.

None indicated at this time.

e. Proposed funding options (See Section 6 for detailed discussions of how funding options work.).

(1) Dedicated user fees.

(2) Development exactions and impact fees.

(3) Increased fines and penalties.

4.1.7 Waste Disposal

a. Lead Agency:

Maine Department of Environmental Protection/Bureau of Solid Waste Management

b. Importance:

Statewide = Moderate significance

Regional = Moderate to high in coastal and southern regions

Land application of sludge, ash, and other residual wastes represents a nonpoint threat at the local and regional levels. The use of onsite dosposal systems (septic systems, etc.) represents a statewide threat to groundwater resources.

Waterbodies impaired and threatened by pollution from waste disposal activities:

River Basin	Waterbody Name	Waterbody No.
Kennebec	Fitzgerald Pond	303L
Tidewater East	Lilly Pond	522L
Tidewater West	Spaulding Pond	630L

There are numerous incidents of groundwater contamination by leaking landfills. See Groundwater Contamination Incidence appendix in the NPS Assessment Report.

c. Statewide Strategies:

(1) The State will define BMPs for each activity.

(2) The State will assess the effectiveness of BMPs.

(3) The State will review/revise appropriate regulations.

(4) The State will increase inspection and enforcement efforts.

d. Program focus on Interim Priority Waterbodies.

The State will develop a baseline assessment of groundwater conditions by developing a groundwater database in cooperation with the State Groundwater Coordinator, the Department of Human Services, and other agencies with groundwater program responsibilities. The database will provide the focus for establishing a groundwater monitoring plan.

e. Proposed funding options (See Section 6 for detailed discussions of how funding options work.).

(1) Bond issue for the accelerating the landfill closure schedule.

(2) Dedicated user fees as per recent waste management legislation.

(3) Increased license fees.

(4) Tax incentives.

4.1.8 Marine Industries

a. Lead Agency:

Maine Department of Marine Resources, Maine Department of Environmental Protection

b. Importance:

Statewide - Low to moderate significance

Regional - Moderate to high significance along the coastline and in estuarine watersheds

Waterbodies that are impaired or threatened by marine industries:

There are no known waterbodies at this time impaired specifically by pollution from marine industries. Salmon farming (aquaculture) in coastal waters is a potential threat to marine waters. This is an infant industry in Maine, and performance standards are currently under development.

c. Statewide Strategies:

(1) The State will define BMPs for each activity.

(2) The State will assess the effectiveness of BMPs.

(3) The State will review/revise appropriate regulations.

(4) The State will increase inspection and enforcement efforts.

(5) The State will complete development of performance standards for marine industries:

- Develop an aquatic life standard for marine waters; and

- Develop a model to predict the dispersion of nutrients that is needed to avoid algal blooms. The ultimate goal is to develop a standard for "minimum nutrient dispersion rate".

d. <u>Program focus on Interim Priority Waterbodies.</u>

The State will focus comprehensive NPS Program efforts in the Casco Bay area initially (See strategies under Urban Development.), and then expand to the coastal waters prioritized under Section 2.2 of this report.

e. <u>Proposed funding options (See Section 6 for detailed discussions of how funding options work.).</u>

(1) Dedicated user fees.

(2) Increased fines and penalties.

4.1.9 Hydrologic Modifications (Dam construction, modifications, re-licensing)

a. Lead Agency

Maine DEP/Land Bureau, Maine DOC/LURC

b. Importance

Statewide = Moderate to high significance (on anadromous fish species)

Regional = Moderate to high significance

Local = High significance

c. Statewide Strategies

(1) The State will continue to implement the Maine Waterway Development & Conservation Act (DEP has jurisdiction in the organized towns and LURC has jurisdiction in the unorganized towns.) for hydrologic modification projects which require permits for associated activities.

(2) For non-hydrologic modification projects, the State will continue to implement the Natural Resources Protection Act for associated activities which require permits.

d. Program focus on Interim Priority Waterbodies.

Activities under this section will be proposal-dependent. Many existing dams will eligible for re-licensing over the next several years. The State is committed to protecting water quality through the Maine Waterway Development & Conservation Act.

e. **Proposed funding options (See Section 6 for detailed discussion of individual funding options.).**

The State will continue to use the General Fund.

The State will consider:

Dedicated user fees;

Natural Resource Protection Act funding possibilities.

4.2 FOUR-YEAR MANAGEMENT PLAN SUMMARY: MAJOR TASKS, SCHEDULE, AND BUDGET

AGRICULTURE

The State will develop and implement a comprehensive program that will focus on information and education, demonstrations in high-priority watersheds, technical assistance, financial assistance and compliance monitoring.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	DEVELOP BMP'S AND PERFORMANCE STANDARDS TO PROTECT WATER QUALITY.	$20,000	YES	MDA, DEP, SCS
'91-92	DEVELOP ADDITIONAL FINANCIAL INCENTIVES FOR BMP IMPLEMENTATION AND SEEK STATE COST-SHARE FUNDING TO ENCOURAGE BMP USE.	$25 TO 50 MILLION	NO	POSSIBLE BOND REFERENDUM
'90	REVIEW/REVISE 38 MRSA (413) TO MAKE IT APPLICABLE TO NON-POINT SOURCE DISCHARGES.	$10,000	YES	DEP
'90-93	DEVELOP COOPERATIVE AGREEMENTS WITH OTHER AGENCIES TO DELIVER TECHNICAL ASSISTANCE.	$ONE MILLION	NO	*Fees for-Services, *Gen'l. Fund *319(h) CWA
'90-93	DEVELOP WATER QUALITY MONITORING AND BMP EVALUATION PROGRAM.	$200,000	NO	Gen'l. Fund
'90-93	CARRY OUT DEMONSTRATION PROJECTS ON HIGH-PRIORITY WATERBODIES.	$800,000	NO	*Spcl. Fin. District *319(h) CWA *PL-566 *ASCS:ACP *Public/private Partnerships
'90-93	MAXIMIZE TECHNOLOGY TRANSFER THROUGH IMPROVED INTERACTION WITH OTHER STATE AGENCIES AND CITIZENS GROUPS.	----	----	Gen'l. Fund
'90-93	IMPROVE AND INCREASE COMPLIANCE MONITORING WITH RESPECT TO NONPOINT POLLUTION SOURCES.	$600,000	NO	*Fees for Services *Gen'l. Fund *319(h) CWA

SILVICULTURE

The State will implement a broad-based program for reducing Nonpoint Source Pollutants which will include BMP development, training, water quality monitoring and enforcement.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	DEVELOP BMP'S AND PERFORMANCE STANDARDS TO PROTECT WATER QUALITY	$20,000	YES	DEPARTMENT OF CONSERVATION
'91	IMPROVE FINANCIAL INCENTIVES FOR FOREST MANAGEMENT AND IMPLEMENTATION	$10,000	NO	*Gen'l. Fund 319(h) CWA
'90	IMPLEMENT PROFESSIONAL LOGGERS PROGRAM AND INTEGRATE BMP AND WATER QUALITY CONSIDERATIONS	$7,500	YES	205(J)(5)
'90-91	CONDUCT COMPREHENSIVE PUBLIC INFORMATION PROGRAM	$20,000	NO	*Gen'l. Fund *319(h) CWA
'90-93	DEVELOP WATER QUALITY MONITORING AND BMP EVALUATION PROGRAM	$200,000	NO	Gen'l Fund
'90-93	IMPROVE AND INCREASE ENFORCEMENT ACTIVITIES IN CONFORMANCE WITH FOREST PRACTICES ACT	$600,000	$300,000 (ONE-HALF)	DEPARTMENT OF CONSERVATION *319(H) CWA *Fines/Penalties
'90-93	MAXIMIZE TECHNOLOGY TRANSFER BY IMPROVED INTERACTIONS WITH OTHER STATE AGENCIES AND CITIZENS GROUPS	----	----	Gen'l. Fund

DEVELOPMENT AND CONSTRUCTION

The State will develop a comprehensive program that will aim to control Nonpoint Source Pollution Resulting from development and construction.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90-93	THE STATE WILL DEVELOP AN EROSION AND SEDIMENTATION CONTROL PROGRAM TO INCLUDE: 1) PRODUCTION OF S&EC TECHNICAL MANUAL. 2) NEW LEGISLATION CREATING A STATE AND SEDIMENTATION CONTROL LAW. 3) DEVELOPMENT OF MODEL ORDINANCES FOR MUNICIPALITIES 4) TRAINING AND TECHNICAL ASSISTANCE FOR MUNICIPALITIES 5) COORDINATION OF MUNICIPAL OUTREACH THROUGH DECD AND ITS GROWTH MANAGEMENT ACTIVITIES 6) COOPERATIVE AGREEMENTS WITH SOIL AND WATER CONSERVATION DISTRICTS FOR TECH ASSISTANCE AND PUBLIC INFORMATION.	$1,200,000	$40,000 NO	205(J)(5) State Match *Fees for Services *319(h) CWA *Gen'l. Fund
'90	THE STATE WILL REVIEW ADEQUACY OF EXISTING TITLE 38 MRSA LAND USE RULES AND REVISE AS NECESSARY.	$20,000	NO	*319(h) CWA *Gen'l. Fund
2.,3.	THE STATE WILL STRENGTHEN ENFORCEMENT, INSPECTION AND COMPLIANCE EFFORTS: 1. TRAIN MUNICIPAL CODE ENFORCEMENT OFFICERS IN NPS CONTROL AND IMPLEMENTATION OF BMP'S 2. INCREASE DEP FIELD ENFORCEMENT. 3. EVALUATE EFFECTIVENESS OF EXISTING PENALTIES AND REVISE AS NECESSARY.	$300,000	NO	*Gen'l. Fund *319(h) CWA *Fines/Penalties *Impact Fees
1.,2.	THE STATE WILL INTEGRATE ENVIRONMENTAL CONSIDERATIONS INTO IMPLEMENTATION OF GROWTH MANAGEMENT LAW OF 1987: 1. PROVIDE TECHNICAL ASSISTANCE TO MUNICIPALITIES ON WATER CONTROL ISSUES AS THEY DEVELOP COMPREHENSIVE PLANS	$200,000	$20,000	*205(J)(5) *Gen'l. Fund *319(h) CWA

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
	(CONT'D) 2. REVIEW DRAFT COMPREHENSIVE PLANS AND ZONING ORDINANCES FOR CONSISTENCY WITH NPS BMP HANDBOOK FOR LOCAL PLANNERS. CONDUCT AN INFORMATION AND EDUCATION PROGRAM.			
'90-92	THE STATE WILL DEVELOP A STATEWIDE STORMWATER MANAGEMENT PROGRAM:	$1,000,000	PARTIAL	SEE BELOW
	1. IMPLEMENT A PHOSPHOROUS CONTROL PROGRAM FOR MAINE FRESHWATERS AND "1ST TIER" COMMUNITIES.	$ 250,000	YES	DEP
	2. IMPLEMENT A NITRATE CONTROL PROGRAM FOR COASTAL WATERS.	----	----	*Fees for Services *319(h) CWA
	3. DEVELOP A NITRATE DELIVERY MODEL FOR ESTUARINE WATER-SHEDS.	----	----	*319(h) CWA *Gen'l. Fund
	4. DEVELOP A NITRATE ALLOCATION METHODOLOGY FOR DEVELOPMENT IN ESTUARINE WATERSHEDS.	----	----	*Gen'l. Fund *319(h) CWA
	5. EVALUATE RELATIVE OF POINT AND NPS OF POLLUTION IN ESTUARINE WATERSHED AND DEVELOP PREDICTIVE MODEL.	$40,000	YES	205(J)(5)
	6. DEVELOP PERFORMANCE STANDARDS FOR QUALITY AND QUANTITY OF RUNOFF FROM NEW CONSTRUCTION.	----	----	*319(h) CWA *Gen'l. Fund
	7. DEVELOP INCENTIVES PROGRAM FOR RETROFITTING STORMWATER MANAGE-MENT SYSTEMS TO EXISTING DEVELOP-MENTS WHERE NEED EXISTS.	----	----	*319(h) CWA- *Gen'l. Fund

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEVELOP BMPS FOR CATEGORIES OF NPS POLLUTION SOURCES: HIGHWAYS BRIDGES, ROADS; LAND DEVELOPMENT; CSO'S; URBAN RUNOFF INFILTRATION WELLS AND BASINS.	----	----	----
'91-92	THE STATE WILL EVALUATE IMPACTS OF NPS POLLUTION ON MAINE WETLANDS:	$50,000	NO	*Gen'l. Fund *319(h) CWA
	1. EVALUATE USE OF WETLANDS FOR TREATMENT OF RUNOFF.	----	----	----
	2. EVALUATE IMPACTS ON GROUNDWATER OF USING WETLANDS FOR TREATMENT OF RUNOFF.	----	----	----
'93-94	THE STATE WILL INVESTIGATE INCREASING THE NUMBER OF STREAM GAUGE STATIONS TO IMPROVE FRESHWATER FLOW DATA TO DOCUMENT ESTUARY FLUSHING RATES.	----	----	*Gen'l. Fund *319(h) CWA
'90	THE STATE WILL EVALUATE AND MAKE RECOMMENDATIONS FOR BMP DEVELOPMENT FOR SUB-SURFACE WASTE DISPOSAL.	$30,000	YES	205(J)(5)

RESOURCE EXTRACTION

The State will develop a comprehensive plan to discover and control Nonpoint Source Pollution resulting from mineral and gravel mining. Nonferrous mining proposals will be addressed through the rule-making process.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEVELOP BMP'S FOR RESOURCE EXTRACTION AND INCORPORATE THEM INTO THE SITE LOCATION PERMIT PROCESS	$20,000	NO	*319(h) CWA *Gen'l. Fund *Fees for Services *Impact Fees
'91	THE STATE WILL DEVELOP A TECHNICAL ASSISTANCE PACKAGE FOR MUNICIPALITIES TO ADDRESS NON-PERMITTED MINES AT LOCAL LEVEL:	$10,000	NO	----
	1) EDUCATIONAL PACKAGE RELATING GRAVEL MINING TO WATER QUALITY	----	----	----
	2) TRAINING ON PLANNING AND IMPLEMENTATION OF BMP'S	----	----	----
'90	THE STATE WILL MAKE THE PROPOSED EROSION AND SEDIMENTATION CONTROL LAW APPLICABLE TO THIS ACTIVITY.	----	----	----
'90	THE STATE WILL REVIEW EXISTING PROGRAMS PERTINENT TO MINERAL MINING AND REVISE IF NEEDED.	10,000	NO	----

TRANSPORTATION FACILITIES AND SUPPORT

A Program will be developed to mitigate Nonpoint Source Pollution resulting from transportation activities.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEFINE BMP'S OR EACH ACTIVITY. DEP AND OTHER AGENCIES WILL ASSIST.	$20,000	YES	DEP/DOT
'91-92	THE STATE WILL ASSESS THE EFFECTIVENESS OF BMP'S	$200,000	NO	*Gen'l. Fund *319(h) CWA
'90	THE STATE WILL REVIEW/REVISE APPROPRIATE REGULATIONS.	$10,000	NO	*Gen'l. Fund *319(h) CWA
'90-93	THE STATE WILL INCREASE INSPECTION AND COMPLIANCE MONITORING EFFORTS.	$500,000	NO	*Fees for Services *Impact Fees
'90-93	THE STATE WILL CONTINUE THE SAND/SALT REMEDIATION AND BUILDING PROGRAMS.	$18 MILLION	$2.1 MILLION (APPROX.)	*STATE BONDS *DOT

CHEMICAL USE AND STORAGE

BMP's, regulations, and enforcement procedures will be developed to cope with Nonpoint Source Pollution brought about by chemical use and storage.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEFINE BMP'S FOR EACH ACTIVITY.	$10,000	YES	DEP
'91-92	THE STATE WILL ASSESS THE EFFECTIVENESS OF BMP'S.	$200,000	NO	*Gen'l. Fund *319(h) CWA
'90	THE STATE WILL REVIEW/REVISE APPROPRIATE REGULATIONS.	$10,000	YES	DEP
'90-93	THE STATE WILL INCREASE INSPECTION AND COMPLIANCE MONITORING EFFORTS.	$500,000	NO	*Fees for Services *Impact Fees *Fines/ Penalties

SOLID WASTE DISPOSAL

The State will develop a program to redress Nonpoint Source Pollution resulting from solid waste disposal.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEFINE BMP'S FOR EACH ACTIVITY.	$10,000	YES	DEP
'91	THE STATE WILL ASSESS THE EFFECTIVENESS OF BMP'S	$200,000	NO	*Gen'l. Fund *319(h) CWA
'90	THE STATE WILL REVIEW/REVISE APPROPRIATE REGULATIONS.	$10,000	YES	DEP
'91-93	THE STATE WILL INCREASE INSPECTION AND COMPLIANCE MONITORING EFFORTS.	$500,000	NO	*Fees for Services *Impact Fees *Fines/ Penalties

MARINE INDUSTRIES

Marine Industries will be investigated as possible Nonpoint Pollution Sources and inspection and enforcement functions as well as performance standards will be developed and/or improved.

Program Year	STRATEGY	Estimated Cost	Funds Avail.?	Existing/ Potential Source
'90	THE STATE WILL DEFINE BMP'S FOR EACH ACTIVITY.	$10,000	YES	DEP
'91	THE STATE WILL ASSESS THE EFFECTIVENESS OF BMP'S	$200,000	NO	*Gen'l. Fund *319(h) CWA
'90	THE STATE WILL REVIEW/REVISE APPROPRIATE REGULATIONS.	$10,000	YES	DEP
'90-93	THE STATE WILL INCREASE INSPECTION AND COMPLIANCE MONITORING EFFORTS.	$500,000	NO	*Fees for Services *Impact Fees *Fines/ Penalties
'90-93	THE STATE WILL COMPLETE DEVELOPMENT OF PERFORMANCE STANDARDS FOR MARINE WATERS: 1. DEVELOP AN AQUATIC LIFE STANDARD FOR MARINE WATERS. 2. DEVELOP A MODEL FOR PREDICTION OF NUTRIENT DISPERSION NECESSARY TO AVOID ALGAL BLOOMS AND DEVELOP A STANDARD FOR "MINIMUM NUTRIENT DISPERSION RATE". PERSION NEEDED TO AVOID ALGAL BLOOMS.	$100,000	NO	*Gen'l. Fund *319(h) CWA

4.3 PROPOSED ALLOCATION OF SECTION 319 FUNDS FOR IMPLEMENTATION OF NPS PROGRAM, BY PROGRAM AREA

Phase I.	0 - 18 months	
40%		Information and Education
50%		Technical Assistance
10%		Enforcement
Phase II.	18 - 36 months	
30%		Information and Education
50%		Technical Assistance
20%		Enforcement
Phase III.	36 - 48 months	
25%		Information and Education
505		Technical Assistance
25%		Enforcement
Phase IV.	Beyond 4th year	
25%		Information and Education
50%		Technical Assistance
30%		Enforcement

SECTION 5

INFORMATION & EDUCATION PROGRAM

A great deal of time and energy has been invested in the NPS Program. The State of Maine has completed an Assessment, will complete a Management Plan, and will write BMPs. Yet none of this work will have much value unless people are aware of the problem and the program.

Therefore, one of the major tools for implementing the NPS Program will be a comprehensive Information and Education (I&E) Program . There will be both a General I&E Program designed to reach and educate the general public and a Specific I&E Program for each of the key NPS categories. By tailoring our approach to specific audiences, we will more completely and effectively convey our message.

5.1 GENERAL I&E PROGRAM

The General Program will be directed toward educating the average Maine citizen or Maine visitor about NPS pollution. The objective is to educate the people to recognize NPS problems, understand why the activity is an NPS problem, take proper precautionary steps to avoid NPS pollution, and either know what corrective action to take or who to contact to correct an NPS problem. This will be accomplished through a variety of methods.

The General I&E Program has two identified audiences: youth and adults. The effects of these programs will overlap, but specific programs will be developed for each group.

5.1.1 Youth

There are many existing educational programs written for the public school system, e.g., Project Wild and Project Learning Tree. These programs need to be identified, evaluated, modified if necessary, and adopted by the State. Once adopted, they need to be distributed in such a manner that they not only wind up in the hands of the educator, but that they are also useful to this person. To ensure their usefulness the DEP will review the curriculum guidelines and then prepare the materials accordingly. DEP will also consult with the Department of Education's Science and Social Studies consultants.

Educators tend to "discover" new programs from two principal sources: (1) other teachers who are already using a program, or (2) workshops. The educators most likely to try new programs are those recently graduated from college. These teachers are just beginning to build their professional libraries. Taking both of these points into consideration, the DEP will contact the Directors of Teacher Education at several Maine campuses and will conduct workshops for student teachers, practicing teachers, scouting leaders, and other youth organization representatives.

To supplement the various NPS lesson plans or programs, personnel from various agencies involved in NPS pollution control will be encouraged to speak at schools and other youth functions. As work with the educational system progresses, DEP will encourage the educational system to incorporate NPS and other

environmental issues to develop a more wholistic education program, rather than having NPS as a separate unit. Specific components of the NPS Youth I&E Program will include the following:

5.1.1.1 Educational programs (lessons)

a. DEP will collect and evaluate existing programs, then modify and recommend adoption.

b. Teacher associations will aid in evaluating and distributing programs.

c. Educators will implement lessons.

5.1.1.2 Meetings

a. DEP staff and other professionals will speak at schools and other youth organizational meetings.

b. DEP, along with professional educators, will develop a slide/video program to be used in the schools.

5.1.1.3 Pamphlets

a. DEP, along with professional educators, will develop pamphlets, issue profiles, and perhaps a coloring book (for younger children) to be used in conjunction with the visual program.

b. DEP will sponsor a poster contest that focuses on the sources of NPS pollution.

5.1.2 Adults

There are many existing organizations, publications, and news programs that the NPS I&E Program can use. The news media will be supplied with journalistic and human interest stories. These stories will either be written by DEP staff or will be the result of DEP Staff interviews with media representatives. In addition, DEP will make a concerted effort to educate news media representatives concerning NPS issues. Slide and/or video programs will be developed for use at association or club meetings. Information pamphlets will also be developed to hand out at meetings or other personal contact situations. Specific components of the NPS Adult I&E Program include the following:

5.1.2.1 News Media

a. Press releases for general publication and specific audiences will be written by DEP and cooperating agencies with public outreach responsibilities (such as University of Maine Cooperative Extension and Soil & Water Conservation Districts).

b. DEP will develop a working relationship with media resources that will result in timely coverage of NPS issues and events.

c. DEP will develop materials for feature articles such as Tux Turkel's environmental series in the Maine Sunday Telegram.

d. DEP staff members will be available for panel-type news programs such as the "Potato Pickers Special" aired on WAGM-TV in Aroostook County.

5.1.2.2 Public Service Announcements

a. DEP will work with radio and television stations to develop PSAs.

5.1.2.3 Audio-visual Aids

a. DEP will enlist the aid of other agencies or consultants to develop slide/video sets.

b. DEP, UMCE, SWCDs, and other appropriate organizations will distribute the slide/video sets.

5.1.2.4 Publications

a. DEP will feature NPS issues in its periodical, "DEP Issue Profiles".

b. DEP and UMCE will develop pamphlets and other publications.

c. DEP, UMCE, and the State Planning Office will develop a high-quality, color publication patterned after the "Baybook" for lay audiences.

5.1.2.5 Meetings

a. DEP and the lead agencies will attend special-interest-group meetings to present the NPS Pollution Control Program:

5.2 MAJOR INTEREST GROUP I&E PROGRAM

Although Maine's NPS Program will affect everyone in the state, certain interest groups will be impacted more directly. These seven major groups have been identified in the Assessment Report. Due to the large impact that the program will have on these groups, portions of the I&E Program will be designed specifically for them.

Two of the major interest groups -- agriculture and silviculture -- are heavily concentrated in Aroostook County. "The County" is more than four hours by car from Augusta, making it difficult to involve Aroostook citizens directly in developing the NPS Program. This situation affects the understanding and acceptance of the various program initiatives in Aroostook County. To alleviate this problem and to foster a spirit of cooperation, the Aroostook NPS Review Committee will be established. The function of the Committee will be to read and disseminate NPS Program information and to provide feedback to DEP. DEP will organize the Committee, mail pertinent information, and hold informal meetings.

Several program elements are common to each of the interest groups:

a. BMPs: DEP will publish the BMP manual for the state.

b. Seminars: DEP will sponsor seminars for the agencies providing technical, financial, and I&E assistance consistent with the NPS Pollution Control Program's delivery system.

c. Meetings: DEP and the other lead agencies will participate in and present information at appropriate group and board meetings; DEP will sponsor and co-sponsor seminars.

d. Demonstration sites and field workshops.

e. Audio-visual aids.

f. Publications and press releases.

5.2.1 Agriculture

Of all the interest groups, Agriculture is the best organized. Most of the agricultural community is already aware of its role and impacts on water quality. Therefore, the major I&E effort will focus on explaining BMPs, the delivery system of which they will be a component, the impacts of agricultural activities on water quality,
and the development of a limited number of demonstration projects. These projects are intended to demonstrate the effectiveness of BMPs.

The Maine Department of Agriculture, UMCE, SWCDs, and USDA agencies will assist with distributing NPS pollution control information to the agricultural community.

5.2.2 Silviculture

Those involved in the timber industry, or more specifically, timber harvesting, can be divided into two groups: the large landowner/managers, and the small independent owners. Those responsible for managing large tracts of land will be relatively

easy to contact about an I&E Program. The small, independent cutters, however, will be more difficult to contact. But the Department of Conservation's Bureau of Public Lands has already established contacts with most of the loggers in the State. DEP will use this network of contacts to reach the small loggers, and will rely heavily on DOC(Maine Forest Service, LURC, Public Lands), UMCE, SWCDs, and SWOAM to provide information to the industry.

Forestry demonstration sites will illustrate the proper installation of BMPs such as logging roads, water bars, buffer strips, and critical area seeding.

5.2.3 Development

DEP will need to inform and educate municipalities, developers, planners, and other groups involved in land development. The Regional Planning Commissions, Maine Municipal Association, Maine Department of Economic and Community Development, and Soil & Water Conservation Districts will be relied upon to communicate this information. Specifically, DEP will:

a. Provide technical direction to Regional Planning Commissions for the development of model ordinances for NPS pollution control.

b. Provide information materials to DECD for distribution to communities that are compatible with the State's Growth Management responsibilities.

c. Help publish and distribute the Environmental Quality Handbook (EQH).

d. Apply the concepts and techniques from the EQH to demonstration sites. DEP will involve local Lake Associations, Regional Planning Commissions, Soil & Water Conservation Districts, and the Soil Conservation Service in the planning and development of the sites.

e. Present at least one award per year for the town that takes the largest strides toward eliminating NPS pollution. Among the factors to be considered will be (1) the scope of the problem, (2) the amount of community support, and (3) the resourcefulness of the approach; and

f. With staff from its NPS Program and its Land Bureau, conduct joint seminars throughout the State for municipal officials and construction contractors. The meetings will link shoreland zoning and NPS pollution control.

5.2.4 Resource Extraction

Resource extraction in Maine is predominantly focused on gravel, sand, lime, and granite pits. A few mineral extraction operations have been proposed, but not licensed as yet. The groups to be targeted in an I&E program are municipalities, consulting firms, construction firms, Maine DOT, and county governments. This impact group is very diverse and not well-organized, and there are relatively few lines of communication. Consequently, most of the information concerning BMPs will be communicated through special meetings held across the state and through publications.

Specifically, DEP will:

a. Develop a pamphlet on the subject of gravel mines, groundwater aquifers, and water quality protection,
b. Develop reclamation standards for resource extraction sites, and
c. Enlist the aid of SCS in providing technical assistance to Towns for the reclamation of resource extraction sites too small for State licensing.

5.2.5 Transportation

Three major groups are involved in transportation: Maine DOT, county governments, and municipalities. These groups will be relatively easy to reach. MMA and the RPCs will be used to contact municipalities. DOT and the counties will be contacted directly.

There is, however, one smaller group involved in road construction and maintenance--the private road associations frequently found along lakes. These roads have a high impact potential and need to be considered a source of NPS pollution. The road associations need to be made aware of their impacts, and of how to get help and where to go for help. DEP will investigate possible solutions to this problem and then transfer the information to the associations.

As a result of a Consent Agreement between LURC and Maine DOT, DOT employees were required to attend a training session. The training sessions appear to have had some impact on DOT's road construction techniques, but more training is still needed.

LURC has started the education process. And DEP's NPS program will continue the process by conducting additional training sessions. Training sessions will focus on proper use and installation of erosion control techniques and the Natural Resources Protection Act.

Specifically, DEP will:

a. Investigate the possible funding of local roadside erosion control projects; and

b. Investigate the possible withholding of state monies for projects that do not have erosion control measures planned or installed.

5.2.6 Chemical Use and Storage

This is an extremely diverse group, but DEP's Bureau of Oil and Hazardous Materials Control, MDA's Pesticide Control Board, and the State Fire Marshall's Office have established lines of communication with industries and establishments handling chemicals. These agencies will be used to disseminate NPS pollution control information.

5.2.7 Waste Disposal

Maine has recently taken some major actions that address the waste disposal issue. Two new state agencies have been created to deal with the new directions that Maine is taking. The first is the Bureau of Solid Waste Management within DEP, created in 1988. The second is the Waste Management Agency, also created in

1988. Both organizations are so new that their policies and programs are just beginning to be implemented. Therefore, the State will rely upon these agencies to implement an I&E program.

5.2.8 Marine Industries

The marine industries are an extremely varied group, but they have a common impact site--the Atlantic Ocean. By their nature these industries are concentrated along certain sections of Maine's coast, which is advantageous to the NPS I&E Program. Meetings and other activities can be located around these centers. DEP will rely heavily upon the Department of Marine Resources to implement an I&E program for marine industries.

5.3 VOLUNTEER MONITORING PROGRAM (VMP) FOR LAKES

The DEP currently monitors water quality parameters for about 270 lakes with the help of volunteers. The program will be expanded to include submerged weed (macrophytes) identification and sampling, and the number of lakes sampled will be increased to 300 in 1990. This will require improved training resources and coordination of volunteers.

SECTION 6

MONITORING AND EVALUATION

6.1 ROLE OF M&E IN THE NPS PROGRAM

Monitoring and evaluation make up the yardstick by which existing water conditions, watershed characteristics, and distribution and extent of nonpoint source activities can be measured. Repeated sampling can show the response of a body of water to changes in pollutant loadings. Water quality monitoring and evaluation help to provide the focus for implementation strategies as well as the feedback needed to evaluate the effectiveness of the Nonpoint Source Pollution Management Program.

Water quality evaluation in Maine is based on the Water Classification Program (See Appendix B). Maine's classification system uses a combination of (1) designated uses and characteristics described for each class of waterbody type and (2) the supporting standards and criteria needed to ensure that water quality will be sufficient to support those uses. Monitoring shows whether a particular body of water meets its classification standards, or whether the water quality is changing over time.

The Maine NPS Assessment Report used a variety of information sources to identify NPS-threatened and -impaired water resources (Appendix A). The Assessment used both "monitored" and "evaluated" information. Monitored information was derived from DEP sampling. Evaluated information came not from sampling, but from presumptive observations and professional

judgments from other agencies such as the Department of Inland Fisheries & Wildlife, Department of Marine Resources, USDA/Soil Conservation Service, and Soil & Water Conservation Districts.

6.2 LIMITATIONS

Because of the vastness of the system of streams, ponds, coastal waters, groundwater, and wetlands that make up Maine's water resources, the volume of monitored data is small. The priority given to point sources over the last 20 years has also contributed to this scarcity. The costs of monitoring, combined with the widespread and diffuse sources of nonpoint pollutants, will prevent the State from ever amassing hard data on more than a fraction of the total water resources. Water chemistry variables can be measured directly in a body of water, but without extensive diagnostic testing, NPS-pollutants normally cannot be traced either to a type of land use or to a specific site in the watershed. Conversely, the discharge from a site or activity can be sampled for its pollution concentrations, but our current technology doesn't correlate this concentration with actual concentrations that would be measured in a receiving body of water.

The three standards used to evaluate water quality in surface waters in Maine are Bacteria, Dissolved Oxygen, and Aquatic Life. The bacterial standard is not presently well suited for the detection of many relevant NPS problems because it is based on bacteria of human origin. Also, the aquatic life sampling methods are not presently very sensitive to habitat

alteration effects because they were developed to be primarily sensitive to quality of the overlying water. The fish and especially the non-fish aquatic life in rivers and streams are very vulnerable to loss of stream-bottom habitat from sedimentation, and destruction of bank habitat. Objective use-attainment criteria and prioritization criteria for surface waters impacted by NPS will need to rely heavily on aquatic life evaluations and habitat impairment evaluations, because aquatic life represents the most sensitive use of the resource.

The assessment of impacts of Best Management Practices (BMPs) on water quality is largely based upon projections. The assumption is that reduction of pollutants at the source will result in improved water quality in receiving waters. Recent reports show that this is not necessarily true. In federal water quality projects where significant reductions of sediment loadings have been attributed to intensive installation of structural and cultural BMPs, monitored water quality has not improved, and in some cases it has worsened. This does not necessarily mean that BMPs are not effective, but it points to the complexity of aquatic systems and the fact that it is difficult to isolate BMP performance from all of the other variables in watershed hydrology.

The short, four-year implementation schedule required by Section 319 will put pressure on the State to show quick results. But aquatic systems are so complex that improvements in water quality may not be evident for as long as 20 years. This is particularly pertinent to groundwater systems. Most of the NPS-

related water quality problems that the State is experiencing are the cumulative results of many years of human habits and incremental pollutant loadings.

Monitoring, particularly sampling methods involving direct measurements of pollution concentrations in water and diagnostic studies of watershed characteristics, are costly. The costs of direct monitoring may severely limit the amount of it that can be done. Data derived from monitoring activities serve both planning and implementation functions.

6.3 M&E STRATEGIES

Primary responsibility for monitoring and evaluation information belongs to the DEP. In addition to monitoring data, DEP relies on a variety of data sources outside the Department to be able to make water quality evaluations. Oversight of all NPS monitoring and evaluation activities will be directed by DEP's Division of Environmental Evaluation and Lake Studies (DEELS) in consultation with technical representatives from natural resource agencies as well as the NPS Advisory Committee.

The specific monitoring and evaluation strategies that the State will seek to implement are as follows (Some may have been previously listed in other sections of this report.):

(1) "Ground-truth" the bodies of water in Appendix A where the data are listed as "evaluated". Monitoring would yield data that would allow the DEP to change the "evaluated" listings to "monitored" or to remove waterbodies from the lists when the monitored data refutes the impaired status.

(2) Expand the Volunteer Monitoring Program for lakes to include 300 lakes in 1990. Priority will be given to those lakes listed as impaired or threatened for which DEP has no monitoring data.

(3) Investigate the establishment of Volunteer Monitoring Programs for other waterbody types (Streams, Coastal Waters, Wetlands).

(4) Establish a quality assurance program, for both new and current monitoring personnel, to improve the quality of data.

(5) There is a need to explore alternative resource evaluation approaches to those which have been successfully applied to point-source impact assessment.

(6) Development of rapid survey tools. As citizen interest in environmental action and our need for watershed-specific surveys increase, a set of easily applied manuals could be developed. These might include:

A. An NPS survey method, modified from currently used formats, tailored to citizen use and designed to form the basis for more professional evaluations, if needed.

B. A manual for watershed evaluation along with clear methods for local application of BMPs. A subset of this which has been already identified is a landowners' guide to gravel road maintenance, complete with sources of information, but simple enough to be applied at a rudimentary level.

(7) Refinement of predictive tools linked to watershed factors. An example of this is a proposal currently under our

Assessment Program for refining the Lake Vulnerability Index to reflect non-cultural watershed features which contribute lake sensitivity to eutrophication.

(8) Development of a groundwater contamination database which includes geographic referencing.

(9) Cooperate with other agencies to establish Geographic Information System (GIS) projects and capabilities to be able to use this powerful tool to evaluate watersheds.

(10) Cooperate with other agencies to monitor and evaluate BMPs to provide corrective feed-back and confirmation of the success or failure of BMP implementation activities. Evaluation is needed to ascertain if designated use attainment is actually being improved by the expenditure of funds for BMP implementation.

(11) Cooperate with other agencies to determine cost-effectiveness of BMPs.

(12) Strive to ensure that technical data will employed to make the prioritization and selection of waterbodies and projects as objective as possible.

SECTION 7

PLAN FOR FUNDING MAINE'S NPS MANAGEMENT PROGRAM

7.1 INTRODUCTION

Implementation of Maine's NPS Program will require substantial financial support. Nationally, the annual costs of the instream damages of soil erosion only (excluding many biological impacts) have been estimated at $4.1 billion. Adequate funding is critical to the development of an effective and efficient control effort. And high levels of funding are especially crucial for programs that depend on cost sharing to implement all or most of the BMPs that are needed to restore beneficial water use.

Although we do not have exact figures on the "cost" to control NPS pollution in Maine, we know that the amount will be large, possibly larger then the cost of point-source programs due to the widespread and diverse nature of NPS pollution. Given the current financial picture, Maine state, regional, and local units of governments will have to fund NPS measures with a variety of sources, including a mix of federal, State and local revenues. In addition, because many of the solutions to NPS pollution are intimately related to land use practices, direct federal assistance may often be inappropriate.

Recognizing the high cost for correction and the diversity of sources, Maine will focus on programs which encourage the beneficiaries and polluters to pay, financing techniques that encourage private investment in pollution abatement, and programs

which increase the public awareness of the need to protect waterbodies from NPS pollution.

7.2 FUNDING PLAN

As noted in the introduction, Maine will encourage a mix of funding be applied to the State's NPS problems. Following is a description of funding mechanisms Maine will use for NPS implementation.

7.2.1 Federal Clean Water Act (CWA) Section 319

Contingent upon EPA approval of Maine's NPS Management Plan, the State is eligible to receive implementation grants under CWA Section 319. As noted in Table 2, Section 319 funds will initially be used to increase technical assistance and information/education efforts. It is important to note that Section 319(b)(4) imposes a site-specific approach on planning, to the maximum extent possible, on a watershed-by-watershed basis. It is likely that any 319 monies will be focused in the high priority watersheds listed in Section 2 of this plan.

7.2.2 Federal CWA Section 205 (j)(5)

Section 205 (j)(5) funds have been used to complete Maine's NPS Assessment and Management plans. In the future, 205 (j)(5) funds are scheduled for elimination as Section 319 provides support for NPS implementation.

7.2.3 State General Fund

The State General Fund currently supports a number of programs and activities related to NPS pollution control. At the Maine DEP NPS-related work performed by the Land, Water Solid Waste, Air, and Oil & Hazardous Materials Bureaus receives support from the General Fund. These activities include technical assistance, compliance monitoring, and enforcement actions. The Bureaus, as well as others in State natural resource agencies such as the Departments of Conservation, Agriculture, and Marine Resources, represent existing or potential sources of state matching funds or increased NPS program implementation activities.

7.2.4 State Revolving Funds (SRF's)

This program is currently being capitalized by EPA grants under CWA Section 601. The law specifically designates implementation of an NPS Management Program as one of two non-sewage treatment purposes for which SRF funds may be used (estuary plan development and implementation is the other), and says that States may make loans or provide other financial assistance to both governmental and private entities. Currently "enforceable" actions required at sewage treatment plants by EPA guidance will utilize appropriated funds. It is anticipated that as the capitalization process is completed, and EPA restrictions are removed, funds will be utilized for NPS Control projects. Maine's FY '89 appropriation exceeds $9 million.

7.2.5 Federal Construction Grant

CWA Section 201 monies represent a potentially large source of funding. Maine's FY'90 program has been appropriated approximately $7 million. Although these monies are currently committed to priority projects, via the provisions of Section 201 (g)(1)(B), Maine may opt to use up to 20% of its Construction Grant allotment for any NPS purposes for which a grant may be made under Section 319.

7.2.6 General Obligation and Revenue Bonds

A government bond is a written promise to repay borrowed money on a definite schedule and usually at a fixed rate of interest for the life of the bond. Like a home mortgage, bonds stretch out payments for new projects over a period of 15 to 30 years. State and local governments repay this debt by levying taxes or fees on their citizens. Bond proceeds are traditionally used as a source of funds for bond banks or direct loan programs. They also have been used for capitalizing revolving loan funds or providing grants.

Municipalities generally issue two types of bonds: general obligation bonds, and revenue bonds. General obligation bonds are backed by the full faith and credit (including the taxing power) of the issuing entity. Bond payments to investors are made directly from the State's general fund. Because of their broad backing and exemption from federal tax, these bonds offer the greatest security, and generally the lowest interest rates.

Revenue bonds are backed by the revenues generated by project operation; thus, bond payments to investors are made from the revenues produced by the project. In the case of revenue bonds issued by communities to build specific facilities, such as wastewater treatment plants, project revenues are derived from user charges paid by the customer. For example, revenue bonds used to finance a drinking water supply project would be repaid through water user fees. Because revenue bonds are dependent on project revenues, they are less secure than general obligation bonds and their rates tend to be higher. Moreover, they are subject to several tax code rules, which limits their tax-exempt status.

Because of their small size or lack of good credit rating, many communities do not have access to the national capital markets at realistic prices. As a result, several states have created bond banks to provide communities an entrance into the bond market. The bond bank can be structured in one of the following ways: (1) a group of communities can pool their small, long-term loans together to form one large bond issue that can be sold on the national market; or (2) a state can sell bonds in the national market and then use the proceeds to purchase bonds from local communities.

The major advantage of a bond bank is that it allows local governments with low or unrated bonds to use the state's credit rating to gain access to national markets. The higher rating allows the locality to obtain lower interest rates and issuance costs.

Bonds represent a means for financing Maine's long-term NPS construction and maintenance efforts and are considered critical to implementing Maine's NPS Management Program.

7.2.7 Dedicated User Fees

A fee can be charged for a service ("beneficiary pays") or designed to recover part or all of the costs associated with pollution-causing activities ("polluter pays"). Environmental fees can be levied on consumption (water use fees), administrative processing activities (permit review fees), or pollution discharges (emissions, effluent, or waste generation fees). Fee levels can be set by law or rule, but in most cases, a law is passed first to establish the fee and the implementing agency is given guidelines to set the fee level. Fee revenues typically are used to supplement appropriations from general revenues, although they sometimes finance a program entirely.

The greatest advantage of environmental fee programs is that they can recover costs from the particular economic sector causing the pollution or demanding the service. Thus, one of the most common types of environmental fee programs is the permit fee, which charges business for the cost associated with reviewing, issuing, and implementing permit provisions.

Another advantage of fee programs is that they can encourage desirable changes in behavior, which in the case of pollution control involves reductions in pollution output. Ideally, a true pollution discharge fee should be based on the amount of damage produced by the pollution. However, most fee systems are

designed to collect revenue without affecting industrial output. The effect on pollution control often is a secondary concern.

7.2.8 Tax Programs

Taxes traditionally are levied against income, real property, and the sale or purchase of specific goods and services. When used to support general government activities, taxes tend to be assessed on as broad a revenue base as possible. Taxes used to support environmental programs, however, are more targeted. They are usually assessed on industries believed to contribute to pollution. For example, the federal Superfund law -- which established a fund to finance the cleanup of abandoned toxic sites -- obtains revenue from the sale of petroleum products. This tax is based on the assumption that most contaminants threatening the environment are derived from petroleum products.

One of the most successful revenue schemes to support an environmental activity is Washington State's cigarette tax, which helps finance the state's water quality program. In this example, no clear connection exists between the tax base (sale of tobacco products) and the use for which the revenue is collected (water pollution control). Nevertheless, this type of "sin tax" elicits little public opposition, particularly when the revenues are used for activities receiving widespread public support.

The advantages of taxes are similar to those of fees, except that taxes tend to be spread over a wider revenue base. Moreover, environmental taxes can use existing tax collection

mechanisms and therefore can reduce the administrative burden of establishing a new one. For example, increasing an existing gasoline tax to cover environmental protection activities would not require new collection resources. The existing system to collect gasoline taxes could be used with little additional administrative expense.

The major drawback to using tax programs is public opposition. State officials emphasize that the term "tax" elicits a certain amount of basic political and public resistance. In the case of an environmental tax, this opposition can be lessened by linking the revenue with a desirable government activity -- namely, pollution control. Thus, a tax may be considered more acceptable if it is levied on the sale or purchase of products that contribute to pollution (e.g., fertilizer, pesticides, oil, and other nonpoint source contaminants).

Taxes may also be used to mitigate the economic forces that drive behavior causing an NPS problem. By providing financial tax incentives (i.e., tax-break) that encourage installation of pollution control practices or to change land management practices, NPS problems can be prevented.

7.2.9 Public-Private Partnerships

A public-private partnership involves the sharing of private and public resources in the design, financing, construction, ownership, and/or operation of a facility designed to provide a public service.

The public-private partnership can take many forms, ranging from "contracting out" in which the public sector turns over facility operation and/or maintenance to a private vendor) to allowing private financing and ownership of facilities (full private control but initiated at public request). Examples in the environmental field include solid waste facilities built with both public and private funds and privately operated wastewater plants built with public money. This concept will likely be used in Maine when constructing regional NPS controls, such as treatment ponds, infiltration systems, or vegetative buffers.

In the past, state and local governments were able to attract private resources by supplying matching funds through tax-exempt revenue bonds, providing accelerated depreciation schedules, and giving a 10 % investment tax credit for infrastructure projects. The Tax Reform Act of 1986 changed this. The act restricts the use of tax-exempt bonds for public projects with more than 10 % private involvement or benefit and limits the total volume of tax-exempt bonds available to each state for this purpose.

The act also repealed the tax credit and made the tax allowances for depreciation less attractive for investors. Prior to these changes, the capital cost recovery system in the tax code was intended to encourage investment in plants and equipment by allowing taxpayers to write off the cost of those investments rapidly. Under the act, those write-offs now take place over the expected life of the property. Infrastructure property tends to

have a very long life, and since money has a time value, extending tax deductions over a long period is costly to firms.

The new tax rules for private investment in public projects drives up the costs of state and local borrowing and discourages private investment in infrastructure. The consequent reduction in private equity means that states and localities must find other, usually more expensive methods to finance their infrastructure projects.

The attractiveness of privatization lies in both economic and non-economic benefits. Under a public-private partnership, the potential exists to realize construction time and cost savings over similar public projects. Often the private sector is more experienced than government in a particular operation and can operate more efficiently.

The major problem inherent in turning over services or operation of a facility to a private entity is the loss of control over the service. Because the public agency is not involved in the day-to-day operation, it does not have control over important aspects of the service such as quality, service interruption (due to strikes, for example), or the inability of the firm to uphold the terms of the contract (such as in the case of bankruptcy).

Another often cited disadvantage of public-private partnerships is that private managers are profit-motivated. In the case of environmental protection, the private firm may not be motivated to achieve optimum environmental quality or conduct continued, detailed analysis of its cleanup products. Moreover,

to avoid public opposition, the controlling agency often must monitor the firm to ensure the public that the firm's labor practices are fair and equitable.

Special Financing Districts

A special financing district is a designated geographical area created within one or more political jurisdictions to raise revenue through taxes from the residents in the area for specific projects. Examples include road districts, sewer and water districts, and other types of local service districts.

A specially created district, often termed a "special financing district," generally takes one of two forms. The first type is a special assessment district. In this case, projects undertaken by the district are financed through extra fees collected in addition to the basis property, sales, and income taxes imposed by the jurisdiction. The second type is a tax increment financing district. In this case, a project undertaken by the district is financed through a surcharge on regularly collected taxes.

Special districts are typically used for landowners who desire infrastructure improvements, developers who want to use the property of the district for a major project, or commercial investors who want to fund improvements inside the district. For example, tax increment financing districts were created in Kentucky to pay for utilities and other necessary public improvements needed by new development in certain jurisdictions.

A special financing district can be created by the State to cover environmental programs. For example, air pollution control

in California is the joint responsibility of the Air Resources Board and 41 independent local air pollution control districts. The state created these special districts to oversee stationary sources of air pollution directly. The districts generated approximately $86 million in total revenues in 1988 to finance their operations. The principal sources of this revenue came from permit fees, emission fees, and local special taxes. The budgets of each district vary widely -- from $13,000 in Modoc County to $51 million in the South Coast District. Most commonly, local property owners who bear the cost must approve the establishment of a special district.

In Maine, existing watershed district enabling legislation represents an excellent opportunity for controlling NPS pollution in lake watersheds. This concept could easily be adapted to marine, ravine, wetland, and groundwater quality.

7.2.10 Development Exactions or Impact Fees

Special taxes called "development exactions" may be levied in areas undergoing rapid growth and development. Assessments may be collected from the developers or property owners who expect to benefit from the development. The tax is usually designed to alleviate the costs of providing public services, such as sewers or roads, required by the development.

Development taxes can take several forms. One form is the developer exaction. In this case, the developer agrees -- in exchange for the government agency granting a zoning change, building permit, or some other necessary allowance -- to support

certain public services by setting aside land, money, or construction services to a public jurisdiction. For example, a developer voluntarily agrees to construct intersections and roads leading to a proposed facility in order to expedite project approval or completion.

Tax incremental financing is another form of development tax. In this case, tax rates do not change, but as property value rises, property tax revenues above a baseline are devoted to special uses, such as sewage system construction or road construction.

7.11 Fines and Penalties

Fines or penalties collected through environmental programs usually are imposed on polluters that continually fail to meet state regulations or submit to a compliance schedule. Environmental fines often are used as a last resort to encourage industries or businesses to comply with state regulations or requirements. But they rarely generate a steady, dependable flow of income.

The funds collected from fines may benefit a specific environmental program directly or be placed into the general fund to be used at the state's discretion. The total amount of revenue generated often depends on the number of staff available to inspect and monitor activities to uncover the violations.

7.3 CONCLUSIONS

It is clear that all of the funding sources discussed and more will be needed to address Maine's NPS problem. Existing federal sources such as EPA 319 grants, SCS P.L. 566 projects, and ASCS cost share monies will provide direct assistance as well as models for state implementation. The State, as part of its comprehensive NPS legislative initiative, must consider both short- and long-term funding.

For NPS control to be effective, the public must be involved in making these financing decisions. NPS problems are too diverse and costly for a single unit of government or a single town to adequately address on its own. For these reasons, and as stated in the introduction, Maine's NPS program will focus on programs that encourage the beneficiaries and polluters to pay, financing techniques that encourage private investment in pollution abatement, and programs that increase public awareness of the need to protect waterbodies from NPS pollution.

SECTION 8

CONSISTENCY REVIEW

8.1 INTRODUCTION

As part of the State NPS Pollution Management Program, Maine has been required to identify those federal financial assistance programs and federal development projects for which the State will review individual assistance applications or proposed development projects for (1) their effect on water quality and (2) their consistency with the Maine Nonpoint Source Management Program. Those programs and projects that Maine has identified and intends to evaluate with respect to NPS management concerns, standards, and criteria are discussed below.

Federal financial assistance programs and development projects will be reviewed for consistency with the Maine Nonpoint Source Management Program primarily through the State's intergovernmental review process established under Executive Order 12372 (i.e., State Clearinghouse). The Clearinghouse will receive a copy of the Management Program which, in addition to identifying waterbodies of special concern, contains a listing of federal programs/projects to be reviewed for consistency. It is anticipated that consistency reviews by Maine will consider direct and indirect effects, cumulative impact, and the degree to which an activity supports or detracts from Management Program objectives.

The Maine State Planning Office (SPO) is the State clearinghouse in Maine. SPO staff will provide DEP NPS staff

with a comprehensive listing of projects submitted under E.O. 12372 on a regular basis. NPS staff, or other DEP staff, will review projects located in priority watersheds, as well as those representing a threat to other surface and groundwater in the State.

8.2 FEDERAL FINANCIAL ASSISTANCE PROGRAMS

These programs include federal programs, projects, services, and activities which provide services or benefits to the American public, either directly or through an intermediate level of government or another agency. Individual programs are listed below.

8.2.1 Department of Agriculture

Agricultural Conservation Program
Forestry Incentives Program
Rural Clean Water Program
Conservation Reserve Program
Resource Conservation and Development Loans
Soil and Water Loans
Watershed Protection and Flood Prevention Projects
Riparian Management Plans
FERC Activities

8.2.2 Corps of Engineers

Dredging
Channel Improvements
Breakwaters
Erosion Control Structures
Dams or Flood Control Works

8.2.3 Federal Highway Administration

Highway Construction/Reconstruction

8.2.4 Department of Interior/Office of Surface Mining

Abandoned Mine Lands Program

8.2.5 Department of Transportation

Airport Improvement Program
Highway Planning and Construction
Public Transportation for Non-urbanized Areas

8.2.6 Environmental Protection Agency

Construction Grants for Wastewater Treatment Works
State Underground Water Source Protection
Clean Lakes Cooperative Agreements
Pesticides Enforcement Program
Hazardous Substance Response Trust Fund (Superfund)
State Underground Storage Tanks Program

8.2.7 Department of Energy

Nuclear Waste Disposal Siting

8.3 FEDERAL DEVELOPMENT PROGRAMS:

These programs include any federal activity involving the planning, construction, modification or removal of public works, facilities, or other structures, and/or the acquisition, management, or disposal of land or water resources.

8.3.1 Forest Service

Watershed Management
Water and Waste Disposal Systems for Rural Communities
Watershed Protection and Flood Prevention Loans
Cooperative Forestry Assistance
Resource Conservation and Development
Soil and Water Conservation
Watershed Protection and Flood Prevention
Projects with White Mountain National Forest

8.3.2 Department of Commerce

Anadromous and Great Lakes Fisheries Conservation

8.3.3 Department of Defense

Aquatic Plant Control
Beach Erosion Control
Flood Plain Management Services
Navigation Projects
Snagging and Clearing for Flood Control
Protection, Clearing, and Straightening Channels
Defense Installations

8.3.4 Department of Interior

Abandoned Mill Reclamation
Irrigation Systems Rehabilitation and Betterment
Anadromous Fish Conservation
Fish Restoration
Projects within Acadia National Park & National Wildlife Refuges

SECTION 9

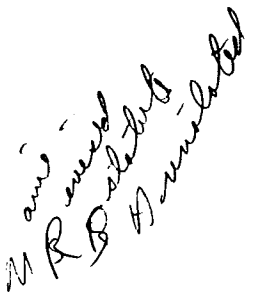
INTERGOVERNMENTAL AND PUBLIC PARTICIPATION

9.1 STATE LAWS USED FOR CONTROL OF NONPOINT SOURCE POLLUTION

Reference	Law/Enforcer	Requirements
12 MRSA (1 et seq.)	Soil and Water Conservation Districts	Establishes voluntary program for soil & water conservation.
12 MRSA (681 et seq.)	Land Use Regulation Commission (LURC)	Establishes land use classification districts and standards for Maine's plantations, unorganized townships, and coastal islands.
12 MRSA (4807)	Minimum Lot Size	Single family residential units which would use subsurface wastewater disposal must be built on parcels of land that are at least 20,000 square feet.
17 MRSA (2802)	Miscellaneous Nuisances DEP, etc.	Declares as a nuisance the rendering impure the water of any river, stream, or pond or diverting them from their natural course.
22 MRSA (42 et seq.)	Plumbing Code/DHS	Specifies system design for subsurface disposal of waste water.
22 MRSA (2642)	Municipal Authority in Public Water Supplies/ Municipalities	Authorizes regulations governing the surface uses of sources of a public water supply, portions thereof or land overlying groundwater aquifers.
30-A MRSA (4301 et seq.)	Comprehensive Planning and Land Use Regulation	Provides procedures and funding for municipalities to develop Comprehensive Plans and land use ordinances.
30 MRSA (4359)	Malfunctioning Septic Systems/Municipalities	Establishes procedures for abatement of discharges from malfunctioning septic systems.
30 MRSA (4956)	Subdivision Law/Municipalities	Will not cause unreasonable soil erosion or a reduction

Reference Continued...	Law/Enforcer	Requirements of the capacity of the land to hold water.
38 MRSA (413)	Waste Discharge Licenses/ DEP	License required for discharge to public waters.
38 MRSA (417)	Certain Discharges Prohibited/DEP	Prohibits forest products refuse from being deposited or discharged into State waters.
38 MRSA (435 et seq.)	Mandatory Shoreland Zoning/ DEP and Municipalities	Protects shoreland areas from erosion, etc.
38 MRSA (481 et seq.)	Site Location of Development/ DEP	1) No adverse effect on natural environment. 2) Development must be built on suitable soils.
38 MRSA (541 et seq.)	Oil Discharge Prevention and Pollution Control/DEP	Provides procedures to be followed during transfer of petroleum and petroleum products.
38 MRSA (561 et seq.)	Underground Storage Tanks/ DEP	Owners of unprotected tanks must replace them according to time schedule.
38 MRSA (451-A)	Sand-Salt Pile Regulation/DEP	Owners of salt storage areas must cover them according to time schedule.
38 MRSA (465-A)	Water Quality Standards/DEP	No change of land use in the watershed of a lake or pond may causewater quality degradation in the lake or pond.
38 MRSA (1301 et seq.)	Solid Waste Management/DEP	Protection of the health, safety and welfare of the State's citizens through the prevention of pollution.
38 MRSA (1319 et seq.)	Hazardous Matter Control/ DEP	Protection of the health, safety and welfare of the State's citizens through the prevention of pollution.

Reference	Law/Enforcer	Requirements
38 MRSA (1917)	Municipal Home Rule/ Municipalities	Municipalities may, by the adoption, amendment or repeal of ordinances or bylaws, exercise any power or function which the Legislature has the power to confer.
38 MRSA (480-A)	Natural Resource Protection Act/ DEP	Consolidates Great Ponds Act, Freshwater Wetlands Act, Stream Alterations, and Alteration of Coastal Wetlands.



Nonpoint Source Advisory Committee

The Nonpoint Source Advisory Committee -- which represents local state and federal agencies, as well as public interest groups (see attached list) -- has provided overall review and guidance for development of Maine's NPS program. In the future the Committee will help develop BMPs, update future assessment reports, and develop new management programs. In addition, BMP working groups have been established and include members from diverse public and private interests.

Public participation is critical to implementing a comprehensive NPS program. The following are additional items related to soliciting public comment and input:

a. Meeting with SWCD's and Maine Association of Conservation Districts Annual meetings (1987 & 1988)

b. Participation in the Clean Water Strategy Meetings (from July 20 to August 2, 1989)

c. Planned meetings for review of NPS Management Plan and BMP development (attached are supporting documents).

APPENDICES

APPENDIX A

IMPAIRED AND THREATENED WATERBODIES

TABLE 1. NONPOINT SOURCE POLLUTION ASSESSMENT --MAINE DRAINAGE BASINS---IMPAIRED RIVERS AND STREAMS

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
St. John River	1	St. John River	14	Upper & Lower Prestile Str	149R& 150R,	Houlton	I								E	Munic.		28	B
St. John River	1	St. John River	14	B Stream	152R	Houlton	I								E	DIF&W		18	B
St. John River	1	St. John River	14	Meduxnekeag River	152R& 153R,	Houlton	I			I					E	SCS		71	B
St. John River	1	St. John River	14	Main Str below Ft Kent	116-118R,	Ft. Kent	I			I					E	Munic.		10	C
St. John River	1	St. John River	14	Presque Isle Stream	140R	Presque Isle	I	I		I					E	DEP, SCS	83	15	A+B
St. John River	1	Fish River	13	Perley Brook	128R	Ft. Kent	I			I					E	SCS		14	
St. John River	1	Fish River	13	McLean Brook	123R	St. Agatha, T17R4	I								E	DIF&W		8	
St. John River	1	Fish River	13	Dickey Brook	124R	St. Agatha, T17R5	I								M	DIF&W		12	
St. John River	1	Fish River	13	Daigle Brook	124R	New Canada, T17R5	I	I							M	DIF&W		7	
St. John River	1	Aroostook River	14	Little Madawaska River	145R	Caribou	I								E	SCS		65	
St. John River	1	Aroostook River	14	Limestone Stream	146R	Limestone	I								E	SCS		7	
St. John River	1	Aroostook River	14	Main Stream	136-144R	P.I., Caribou, Ft.Fair	I								E	SCS		62	
St. John River	1	Aroostook River	14	Everett Brook	143R	Ft. Fairfield	I			I					M		96	4	A+B
SUB-TOTAL, BASIN #1																		306	
Penobscot River	2	Mattawamkeag	23	Dyer Brook	208R	Island Falls	I	I							E	SASWCD		13	B
Penobscot River	2	Penobscot River	25	Allen Stream	224R	Dexter, E. Corinth	I								E	SCS		3	B
Penobscot River	2	Penobscot River	25	Black Stream	224R	Levant, Hermon	I								E	SCS		16	B
Penobscot River	2	Penobscot River	25	Crooked Brook	224R	Charleston	I								E	SCS		8	B
Penobscot River	2	Penobscot River	25	French Mill Stream	224R	Exeter	I								E	SCS		8	B
Penobscot River	2	Penobscot River	25	Great Brook	224R	Bangor	I								E	SCS		1	B
Penobscot River	2	Penobscot River	25	Main Stem	229R	Medway				I					E	Munic.		5	C
Penobscot River	2	Penobscot River	25	Main Stem	234R	Brewer				I					E	Munic.		6	C
Penobscot River	2		25	Soudabscook Stream			I			I					E	DIF&W		20	
Penobscot River	2	Kenduskeag Stream	25	Entire Stream			I			I					E	SCS		25	
Penobscot River	2	Kenduskeag Stream	25	Burnham Brook	225R	Garland	I								M		215	3	B
Penobscot River	2	Kenduskeag Stream	25	Unnamed Brook	225R	Corinth	I								M			2	B
SUB-TOTAL, BASIN #2																		110	

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
Kennebec River	3	Kennebec River		Bond Brook	333R	Augusta			I	I					E	DEP/BWQC		1	
Kennebec River	3			Nash Brook	307R	Alder Stream Twp.		I							E	Private		1	A
Kennebec River	3			Wesserunsett Stream	314R	Brighton Plt, Athens	I	I		I					E	SCSWCD		36	B
Kennebec River	3			Beaver Brook	316R	Farmington			I	I					E	Munic.		16	B
Kennebec River	3			Hardy Brook	317R	Farmington			I						E	Munic.		1	B
Kennebec River	3			Pine Brook	317R	Wilton		I							E	FCSWCD		1	B
Kennebec River	3			Varnum Stream	317R	Wilton		I							E	FCSWCD		15	B
Kennebec River	3			Wilson Stream	317R	above Wilton		I							E	FCSWCD		8	B
Kennebec River	3			Wilson Stream	318R	Wilson L. to Mt. Blue			I	I					E	FCSWCD		4	C
Kennebec River	3			Roseanne Brook	334R	Winthrop			I	I					E	DIF&W		1	B
Kennebec River	3	Sandy River	33	Muddy Brook	316R	New Sharon		I							E	DIF&W		8	
Kennebec River	3	Sandy River	33	Main Str above Strong	315R	Avon, Phillips		I							E	DIF&W		18	
Kennebec River	3	Sandy River	33	Barker Stream	316R	Farmington	I								M		268	4	B
Kennebec River	3	Sandy River	33	Unnamed Stream	316R	New Sharon	IB								M			0.2	C
Kennebec River	3	Kennebec River	33	Carrabassett Stream	320R	Canaan	I								M		267	11	B
Kennebec River	3	Kennebec River	33	Mill Stream	320R	Norridgewock	I								M			1	B+C
Kennebec River	3	Kennebec River	33	Mill Stream	320R	Norridgewock						I	L		M			0.7	B
Kennebec River	3	Messalonskee Stream	33	Fish Brook	322R	Fairfield	I								M		30	7	C
Kennebec River	3	Sebasticook River	33	Thompson Brook	324R	Hartland	I								M		317	7	B
Kennebec River	3	Sebasticook River	33	Brackett Brook	325R	Palmyra	I			I					M		221	2	C
Kennebec River	3	Fifteenmile Stream	33	Mill Stream	327R	Albion	I			I					M		70	2.5	C
Kennebec River	3	Sebasticook River	33	Farnham Brook	329R	Pittsfield	I								M		144	10	C
Kennebec River	3	Sebasticook River	33	12-Mile Brook	329R	Clinton	I								M			7	C
Kennebec River	3	Sebasticook River	33	Unnamed Stream	329R	Benton	I								M			2	C
Kennebec River	3	E. Br. Sebasticook	33	Martin Stream	325R	Newport, Plymouth	I								E	DIF&W		24	
Kennebec River	3	E. Br. Sebasticook	33	Twentyfivemile Stream	326R	Burnham, Unity	I			I					E	DIF&W		10	
Kennebec River	3	E. Br. Sebasticook	33	China Lake Outlet	328R	Vassalboro	I			I					E	DIF&W		7	
Kennebec River	3	E. Br. Sebasticook	33	Sevenmile Stream			I			I					E	DIF&W		7	
Kennebec River	3	E. Br. Sebasticook	33	Togus Stream	335R	Chelsea	I			I					E	DIF&W		3	
Kennebec River	3	Kennebec River	33	Vaughn Brook	333R	Hallowell	I								M		356	5	B
Kennebec River	3	Cobbosseecontee Str	33	Mud Mills Stream	334R	Monmouth	I								M		217	5	B
Kennebec River	3	Cobbosseecontee Str	33	Potters Brook	334R	Litchfield	I								M			2.5	B
Kennebec River	3	Cobbosseecontee Str	33	Tingley Brook	334R	Readfield	I	I							M			2	C
Kennebec River	3	Cobbosseecontee Str	33	Jock Stream	334R	Wales, Monmouth	I			I					M	DIF&W		7	
Kennebec River	3	Cobbosseecontee Str	33	Jug Stream	334R	Monmouth	I			I					E	DIF&W		1	
Kennebec River	3	Kennebec River	33	Kimball Brook	335R	Pittston	I								M		141	3	B
SUB-TOTAL, BASIN #3																		240.9	

TABLE 1 (Cont'd.)

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
Androscoggin River	4			Kendall Brook	406R	Bethel			I	I					E	OCSWCD		6	B
Androscoggin River	4			Mill Brook	406R	Bethel			I						E	Munic.		7	B
Androscoggin River	4			Sunday River	406R	Newry								I	E	OCSWCD		3	B
Androscoggin River	4			Sparrow Brook	410R	Canton		I		I					E	Lake Ass.		4	B
Androscoggin River	4			Thompson Brook	410R	Canton		I							E	Lake Ass.		4	
Androscoggin River	4	Little Androscoggin	42	Main Stream	414R	So. Paris			I	I					E	OCSWCD		4	B+C
Androscoggin River	3	Androscoggin River	42	Sabattus River	418R	Sabattus	I			I					E	DIF&W		28	B+C
Androscoggin River	4	Androscoggin River	42	Main Stream	422R	Canton	I								E	OCSWCD		9	C
Androscoggin River	4	Androscoggin River	42	Penley Brook	333R	Auburn				I					M		81	0.7	C
Androscoggin River	4	Little Androscoggin	42	Morgan Brook	415R	Minot	I								M		102	2.3	B
Androscoggin River	4	Little Androscoggin	42	Abagadassett River	420R	Richmond	I								M			9	B
SUB-TOTAL, BASIN #4																		77	
Tidewater East	5	Pleasant River	52	Pleasant River	511R	T18, MD	I								E	DIF&W		13	
Tidewater East	5	Machias River	52	Mopang Stream	510R	T24,T25 MD	I								E	DIF&W		14	
Tidewater East	5	Machias River	52	Old Stream	510R	T31 MD, Wesley	I	I							E	DIF&W		8	
Tidewater East	5	Machias River	52	Entire Stream System	510R	Wesley, Northfld,T25	I	I		I					E	DIF&W		8	B
Tidewater East	5	Harrington River	52	Trout Brook	513R	Columbia									E	DIF&W		9	
Tidewater East	5		52	McCoslin Stream	520R	Penobscot	I								E	WCSWCD		5	B
Tidewater East	5	St. Croix River	51	Grand Lake Stream	502R	T27 ED			I	I					E	DIF&W		2	A+B
Tidewater East	5		52	Carleton Stream	520R	Blue Hill					I				M		120	4	C
Tidewater East	5		52	Passagassawakeag R.	521R	Belfast, Waldo	I	I		I					E	WCSWCD		10	
Tidewater East	5		52	Warren Brook	521R	Belfast	I								M		202	2	B
Tidewater East	5	Medomak River	52	Medomak River	525R	Union,Liberty,Wash.	I								M			12	B
SUB-TOTAL, BASIN #5																		87	

TABLE 1 (Cont'd.)

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
Tidewater West	6		61	Frost Gully Brook	602R	Freeport				I					M			3	A
Tidewater West	6	Royal River	61	Chandler River	603R	N.Yarmouth/Pownal	I								M			13	B
Tidewater West	6		61	Unnamed Brook	603R	N.Yarmouth/ Yarmouth	I								M			2	C
Tidewater West	6	Presumpscot River	61	Songo River	605R	Naples				I					E	Munic.		1	B
Tidewater West	6	Presumpscot River	61	Black Brook	607R	Windham	I								M		201	5	B
Tidewater West	6	Presumpscot River	61	Colley Wright Brook	607R	Windham	I								M			5	B
Tidewater West	6	Presumpscot River	61	E.Br. Piscataquis River	607R	Falmouth	I								M			10	B
Tidewater West	6	Presumpscot River	61	Hobbs Brook	607R	Cumberland	I								M			1.5	B
Tidewater West	6	Presumpscot River	61	Inkhorn Brook	607R	Westbrook	I								M			4	B
Tidewater West	6	Presumpscot River	61	Mosher Brook	607R	Gorham	I								M			2	B
Tidewater West	6	Presumpscot River	61	Otter Brook	607R	Windham	I								M			2	B
Tidewater West	6	Royal River	61	Main Stem	603R	New Gloucester	I				I				E	DIF&W	143	6	B+C
Tidewater West	6	Royal River	61	Chandler River	603R	N. Yarmouth, Pownal	I								M			13	B
Tidewater West	6			Mare Brook	602R	Brunswick N.A.S.				I					E	DIF&W		2	
Tidewater West	6	Presumpscot River	61	Pleasant River	607R	Gray, Windham	I								E	DIF&W	201	8	B+C
Tidewater West	6	Presumpscot River	61	Main Stem below South Windham	607R	Windham, Gorham				I					E	DIF&W		12	B
Tidewater West	6	Presumpscot River	61	Thayer Brook	607R	Gray	I								M			3	B
Tidewater West	6		61	Capisic Brook	610R	Portland				I					M			3	C
Tidewater West	6		61	Clark Brook	610R	Westbrook				I					M			1	C
Tidewater West	6		61	Long Creek	610R	S.Portland,Westbrook				I					M			3	C
Tidewater West	6		61	Red Brook	610R	Scarborough				I					M			3	B
Tidewater West	6		61	Stroudwater River	610R	Gorham	I		I	I					M			4	B
Tidewater West	6		61	Alewife Brook	611R	Cape Elizabeth	I								M			1	A
Tidewater West	6		61	Phillips Brook	611R	Scarborough				I					M			1.5	C
Tidewater West	6	Saco River	62	Main Stem	613R	Fryeburg	I		I	I					E	DIF&W		2	C
Tidewater West	6	Saco River	62	Wards Brook	613R	Fryeburg								I	M		824	1.5	C
Tidewater West	6	Saco River	62	Cooks Brook	616R	Waterboro						IM			M		150	1.5	B
Tidewater West	6	Saco River	62	Deep Brook	616R	Saco	I								M			2.5	C
Tidewater West	6	Saco River	62	Swan Pond Brook	616R	Biddeford			I	I					E	DIF&W		12	B
Tidewater West	6			Kennebunk River	622R	Kennebunk			I	I					E	YCSWCD		12	B
Tidewater West	6	Great Works River	63	Main Stem	625R	Sanford			I	I					E	DIF&W	87	2	B
Tidewater West	6	Great Works River	63	Adams Brook	625R	Berwick	I								M			1.5	B
Tidewater West	6	Great Works River	63	Lovers Brook	625R	South Berwick	I								M			2	B
SUB-TOTAL, BASIN #6																		146	

TABLE 1 (Cont'd.)

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
Estuarine & Marine	7			Scarborough R. Est.	700	Scarborough	I			I					E	Munic.			SB
SUB-TOTAL, BASIN #7																			

THREATENED RIVERS & STREAMS

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO.	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	STREAM LENGTH	WATER CLASS
Tidewater East	5			St. George River	523R		T	T		T					E	DIF&W		24	
Tidewater East	5			Sheepscot River						T					E	DIF&W		8	
Tidewater East	5			Damariscotta River						T					E	DIF&W		4	
Tidewater East	5			Pemaquid River						T					E	DIF&W		1	
Tidewater East	5			Ducktrap River						T					E	DIF&W		7	
Tidewater East	5			Megunticook River						T					E	DIF&W		3	
Tidewater East	5			Goose River			T			T					E	DIF&W		4	
SUB-TOTAL, THREATENED RIVERS & STREAMS																		51	

TABLE 1 (Cont'd.).

EXPLANATION OF TERMS
TYPE ASSESSMENT
E = Evaluated (Status based on professional judgment)
M = Monitored (Status based on data from sampling)
IMPAIRMENT STATUS
I = Impaired (Does not meet water classification)
T = Threatened (Impairment imminent without remedial action)

BASIN #	EVALUATED WATERS	MONITORED WATERS
1	302	4
2	85	25
3	229	61.9
4	65	12
5	72	15.4
6	70	76
	823	194.3 MILES

TOTAL IMPAIRED WATERS = 1017.3 MILES

CATEGORIES AND SUBCATEGORIES OF NONPOINT SOURCE POLLUTION	
10 - AGRICULTURE	A - CROPLAND, B - ANIMAL WASTES
20 - SILVICULTURE	
30 - CONSTRUCTION	D - HIGHWAYS, BRIDGES, & ROADS, E - LAND DEVELOPMENT
40 - URBAN LAND	G - STORMWATER SEWERS, H - COMBINED SEWERS, I - RUNOFF, J - DRYWELLS AND BASINS
50 - RESOURCE EXTRACTION	
60 - LAND DISPOSAL	K - ORGANIC WASTES, L - LANDFILLS, M - HAZARDOUS WASTE AREAS
70 - HYDROLOGIC MOD.	
80 - OTHER	O - ATMOSPHERIC DEPOSITION, P - UNDERGROUND STORAGE TANKS, Q - IN-PLACE DEPOSITS, R - SNOW DUMPS, S - SAND/SALT PILES

TABLE 2. NONPOINT SOURCE POLLUTION ASSESSMENT - MAINE DRAINAGE BASINS - LAKES AND PONDS

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	SURFACE AREA	WATER CLASS
St. John's River	1	Allagash River	12	Long Lake	123L	St. Agatha	I								M			6000	GPA
St. John's River	1	Allagash River	12	Cross Lake	124L	T16	I								M			2515	GPA
St. John's River	1	Fish River	13	Black Lake	124L	Ft. Kent	I								M			51	GPA
St. John's River	1	Fish River	13	Daigle Pond	124L	Daigle	I								M			36	GPA
St. John's River	1	Presque Isle Stream	14	Hanson Brook Pond	140L	Presque Isle	I								M			11	GPA
St. John's River	1	Aroostook River	14	Monson Pond	143L	Ft. Fairfield	I								M			160	GPA
St. John's River	1	Aroostook River	14	Fischer Lake	143L	Ft. Fairfield	I								M			5	GPA
St. John's River	1	Little Madawaska River	14	Madawaska Lake	145L	Stockholm	I								M			1526	GPA
SUB-TOTAL, BASIN #1																		8885	acres
Penobscot River	2	Souadabscook Stream	25	Etna Pond	225L	Stetson	I								M			361	GPA
Penobscot River	2	Souadabscook Stream	25	Hammond Pond	225L	Hampden	I								M			96	GPA
Penobscot River	2	Souadabscook Stream	14	Hermon Pond	225L	Hermon	I								M			461	GPA
Penobscot River	2	Penobscot , minor tribs.	25	Caribou Pond	220L	Lincoln	I								M			825	GPA
Penobscot River	2	Penobscot , minor tribs.	25	Long Pond	220L	Lincoln	I								M			523	GPA
SUB-TOTAL, BASIN #2																		918	acres
Kennebec River	3	Cobbosseecontee Stream	33																
Kennebec River	3	Cobbosseecontee Stream	33	Cobbosseecontee Lake	334L	Litchfield	I								M			5543	GPA
Kennebec River	3	Cobbosseecontee Stream	33	Pleasant Pond	334L	Litchfield	I								M			746	GPA
Kennebec River	3	Cobbosseecontee Stream	33	Upper Narrows Pond	334L	Winthrop			IE						M			279	GPA
Kennebec River	3	Kennebec River	33	Togus Pond	335L	Augusta			IE						M			660	GPA
Kennebec River	3	Kennebec River	33	Three Mile Pond	333L	Vassalboro	I								M			1162	GPA
Kennebec River	3	Kennebec River	33	Weber Pond	333L	Vassalboro	I								M			1201	GPA
Kennebec River	3	E. Br. Sebasticook River	32	Sebasticook Lake	325L	Newport	I								M			4288	GPA
Kennebec River	3	E. Br. Sebasticook River	32	Half Moon Pond	325L	St. Albans	I								M			36	GPA
Kennebec River	3	China Lake Outlet & Tribs.	32	China Lake	328L	China	I		IE						M			3845	GPA
Kennebec River	3	Messalonski Stream	32	Salmon Lake	321L	Belgrade	I								M			666	GPA
Kennebec River	3	Fifteenmile Stream	32	Lovejoy Pond	327L	Albion	I								M			324	GPA
Kennebec River	3	Moosehead Lake	31	Fitzgerald Pond	303L	Big Squaw						IM			M			550	GPA
Kennebec River	3	Messalonskee Stream	32	East Pond	321L	Oakland	I								M			1705	GPA
SUB-TOTAL, BASIN #3																		20720	acres

TABLE 2 (Cont'd.). NONPOINT SOURCE POLLUTION ASSESSMENT - MAINE DRAINAGE BASINS - LAKES AND PONDS

MAJOR BASIN	CO	SUB-BASIN	CO	SUB-SUB-BASIN (WATERBODY)	WB NO	TOWN	10	20	30	40	50	60	70	80	TYPE ASSESS	DATA SOURCE	DRAIN AREA	SURFACE AREA	WATER CLASS
Androscoggin River	4	Sabattus River	41	Sabattus Pond	418L	Greene	I								M			1962	GPA
SUB-TOTAL, BASIN #4																		1962	acres
Tidewater East	5		52	Lilly Pond	522L	Rockport						IL			M			29	GPA
Tidewater East	5		52	Chickawakie Pond	522L	Rockland/Rockport		I		IE					M			352	GPA
Tidewater East	5		53	Havener Pond	524L	Waldoboro	I								M			83	GPA
SUB-TOTAL, BASIN #5																		381	acres
Tidewater West	6	Salmon Falls River	63	Spaulding Pond	630L	Lebanon			IE			IL			M			118	GPA
Tidewater West	6	Royal River	61	Notched Pond	603L	Raymond	I								M			77	GPA
SUB-TOTAL, BASIN #6																		118	acres

SUMMARY, IMPAIRED LAKES & PONDS

BASIN #	AREA
1	8885
2	918
3	20720
4	1962
5	381
6	118
TOTAL	32,984 ACRES

SUB-TOTAL, Threatened Lakes, from Vulnerability Index 47840 acres

TABLE 3. LAKES AND PONDS WHICH ACCORDING TO THE LAKE VULNERABILITY INDEX MAY BE THREATENED WITH NONATTAINMENT OF WATER QUALITY STANDARDS DUE TO NONPOINTSOURCE POLLUTION.

Lake and Pond Vulnerabilities as of May 1, 1988 have been assessed by the Division of Environmental Evaluation and Lake Studies of the DEP's Bureau of Water Quality Control. This index is a predictive model which equates a lake or pond's hydrologic characteristics and rate of watershed development (from 1984 to 1986) with how long it will take for phosphorus concentrations in the lake or pond to increase by 1 part per billion (ppb). The major limitation of this model is that the rates and patterns of development in lake watersheds may be quite different over the next 10 or 50 years then they were from 1984 to 1986. Another significant limitation on its validity is that the applicability of the phosphorus input-output model used may vary from lake to lake.

Depending upon a lake or pond's current water quality status, a 1 ppb increase in phosphorus level may or may not cause a noticeable decline in the lake's water quality. For extremely vulnerable lakes and ponds, a 1 ppb phosphorus increase is predicted to occur within 10 years. For Highly Vulnerable Lakes and Ponds, a 1 ppb increase in phosphorus is predicted to occur within 50 years. On a Statewide basis, 0.7% of the surface area of Maine's lakes and ponds fall into the Extremely Vulnerable category and 11.2% into the Highly Vulnerable category. Often a lake will have distinct basins with varying levels of vulnerability. To make this distinction among lake basins, abbreviations (B#1), (B#2), etc. are used in this index.

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LAKE VULNERABILITY INDEX

ST. JOHN RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Bennett Lake	Easton	6 hectares
Big Greenland Lake	Danforth	54 hectares
Black Lake	Fort Kent	18 hectares
County Road Lake	New Limerick	9 hectares
Easton Pond	Easton	4 hectares
Fischer Lake	Fairfield	2 hectares
Germain Lake	Madawaska	40 hectares
Glancy Lake	New Limerick	10 hectares
Gould Pond	New Limerick	20 hectares
Hannigan Pond	New Limerick	3 hectares
Lambert Pond	New Limerick	3 hectares
Lindsay Pond	Easton	4 hectares
Monson Pond	Fort Fairfield	37 hectares
TOTAL		210 hectares (519 acres)

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LAKE VULNERABILITY INDEX

ANDROSCOGGIN RIVER BASIN
EXTREMELY VULNERABLE LAKES AND PONDS

Little Sabattus	Greene	10 hectares
Loon Pond	Webster Plt	24 hectares
No Name Pond	Lewiston	58 hectares
Taylor Pond	Auburn	259 hectares
TOTAL		351 hectares (867 acres)

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ANDROSCOGGIN RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Allen Pond	Greene	76 hectares
Androscoggin Lake	Leeds	1616 hectares
Bartlett Pond	Livermore	11 hectares
Brettuns Pond	Livermore	62 hectares
Caesar Pond	Bowdoin	20 hectares
Crystal Pond	Turner	14 hectares
Green Pond	Oxford	16 hectares
Hales Pond	Fayette	29 hectares
Hogan Pond	Oxford	66 hectares
Howard Pond	Hanover	52 hectares
Labrador Pond	Sumner	42 hectares
Lake Auburn	Auburn	897 hectares
Little Labrador Pond	Sumner	6 hectares
Little Penneesseewas	Norway	39 hectares
Little Wilson Pond	Turner	44 hectares
Lower Range Pond	Poland	118 hectares
Marshall Pond	Oxford	57 hectares
Middle Range Pond	Poland	156 hectares
Moose Pond	Paris	35 hectares
Moose Pond	Otisfield	62 hectares
Nelson Pond	Livermore	5 hectares
North Pond	Norway	67 hectares
Number 9 Pond	Livermore	82 hectares
Pennesseewassee Lake	Norway	384 hectares
Pleasant Pond	Turner	77 hectares
Round Pond	Livermore	64 hectares
Sabattus Pond	Webster Plt	796 hectares
Sand Pond	Norway	55 hectares
Saturday Pond	Otisfield	69 hectares
Thompson Lake	Oxford	1710 hectares
Tripp Pond	Poland	296 hectares
Upper Range Pond	Poland	136 hectares
Whitney Pond	Oxford	65 hectares
Worthly Pond	Poland	20 hectares
TOTAL		7,244 hectares (18,634 acres)

LAKE VULNERABILITY INDEX

KENNEBEC RIVER BASIN
EXTREMELY VULNERABLE LAKES AND PONDS

Anderson Pond	Augusta	8 hectares
Austin Pond	Bald Mtn. TWP T2R3	264 hectares
Berry Pond	Winthrop	68 hectares
Dam Pond	Augusta	39 hectares
Greely Pond	Augusta	19 hectares
Hutchinson Pond	Manchester	37 hectares
Jamies Pond	Manchester	38 hectares
Lily Pond	Bath	5 hectares
Little Togus Pond	Augusta	15 hectares
Pattee Pond	Winslow	202 hectares
Threecornered Pond	Augusta	72 hectares
Togus Pond	Augusta	260 hectares
Tolman Pond	Augusta	23 hectares
TOTAL	1,050 hectares (2594 acres)	

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KENNEBEC RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Annabessacook Lake	Winthrop	563 hectares
Ballard Pond	Farmington	3 hectares
Beech Pond	Palermo	24 hectares
Branch Pond	China	124 hectares
Buker Pond	Litchfield	31 hectares
Butler Pond	Lexington	10 hectares
Center Pond	Phippsburg	31 hectares
China Lake	China	1584 hectares
Chisholm Pond	Palermo	17 hectares
Cobbosseecontee Lake	Winthrop	2120 hectares
Cochnewagon	Monmouth	156 hectares
Colby Pond	Liberty	11 hectares
Desert Pond	Mount Vernon	9 hectares
Dexter Pond	Winthrop	42 hectares
Dutton Pond	Albion	23 hectares
East Pond	Smithfield	698 hectares
Foster Pond	Palermo	13 hectares
Gardiner Pond	Wiscasset	30 hectares
Gould Pond	Dexter	3 hectares
Ingham	Mount Vernon	17 hectares
Jimmy Pond	Litchfield	19 hectares
Jump Pond	Palermo	13 hectares
Kezar Pond	Winthrop	8 hectares
Lake George	Skowhegan	123 hectares
Lake Wassookeag	Dexter	417 hectares
Lily Pond	Sidney	11 hectares
Little Cobbossee	Winthrop	32 hectares
Little Dyer Pond	Jefferson	40 hectares

LAKE VULNERABILITY INDEX

KENNEBEC RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS(Cont'd)

Little Mud Pond	Greenville Junction	6 hectares
Lovejoy Pond	Albion	133 hectares
Lower Narrows Pond	Winthrop	84 hectares
Maranacook Lake(B#1)	Winthrop	473 hectares
Maranacook Lake(B#2)	Readfield	241 hectares
McGrath Pond	Oakland	197 hectares
Messalonskee	Sidney	1419 hectares
Moody Pond	Windsor	10 hectares
Moose Pond	Mount Desert	26 hectares
Morrill Pond	Hartland	58 hectares
Mosher Pond	Fayette	29 hectares
Mud Pond	Harmony	5 hectares
Mud Pond	Windsor	23 hectares
Nakomis Pond	Palmyra	80 hectares
Nehumleag Pond	Pittston	73 hectares
Nequasset Lake	Woolwich	172 hectares
Oakes Pond	Skowhegan	35 hectares
Pease Pond	Wilton	44 hectares
Pleasant Pond	Richmond	303 hectares
Puffer Pond	Dexter	36 hectares
Roderique Pond	Rockwood Strip	15 hectares
Saban Pond	Palermo	5 hectares
Salmon Lake	Oakland	270 hectares
Sand Pond	Litchfield	106 hectares
Savade Pond	Windsor	22 hectares
Sewall Pond	Arrowsic	18 hectares
Shed Pond	Readfield	19 hectares
Sherman Lake	Newcastle	86 hectares
Spectacle Pond	Augusta	55 hectares
Stafford Pond	Hartland	50 hectares
Stratton Brook Pond	Wyman TWP	13 hectares
Three Mile Pond	China	458 hectares
Tinkham Pond	Chelsea	6 hectares
Torsey Lake	Readfield	230 hectares
Tufts Pond	Kingfield	21 hectares
Turner Pond	Palermo	79 hectares
Upper Narrows Pond	Winthrop	90 hectares
Ward Pond	Sidney	21 hectares
Watson Pond	Rome	27 hectares
Webber Pond	Vassalboro	485 hectares
Welhern Pond	Eustis	5 hectares
Wesserunsett Lake	Madison	572 hectares
Whittier Pond	Rome	9 hectares
Wilson Pond	Wayne	223 hectares
Woodbury Pond	Litchfield	176 hectares
TOTAL	12,680 hectares (31,320 acres)	

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LAKE VULNERABILITY INDEX

PENOBSCOT RIVER BASIN
EXTREMELY VULNERABLE LAKES AND PONDS

George Pond	Hermon	18 hectares
Tracy Pond	Hermon	19 hectares
TOTAL		37 hectares (91 acres)

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PENOBSCOT RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Ben Annis Pond	Hermon	15 hectares
Branns Mill Pond	Dover-Foxcroft	110 hectares
Cambolasse Pond	Lincoln	86 hectares
Center Pond	Lincoln	82 hectares
Chemo Pond	Eddington	469 hectares
Crooked Pond	Lincoln	90 hectares
Davis Pond	Holden	156 hectares
Dow Pond	Sebec	6 hectares
Egg Caribou Long Pond	Lincoln	337 hectares
Folsom Pond	Lincoln	153 hectares
Garland Pond	Sebec	10 hectares
Garland Pond	Garland	35 hectares
Green Pond	Lee	48 hectares
Hammond Pond	Hampden	39 hectares
Hermon Pond	Hermon	179 hectares
Holbrook Pond	Holden	123 hectares
Holland Pond	Alton	33 hectares
House Pond	Lee	4 hectares
Jerry Pond	Millinocket	27 hectares
Little Madagascal Pd.	T 03 R01 NBP	15 hectares
Little Pushaw Pond	Hudson	165 hectares
Marr Pond	Sangerville	34 hectares
Mattekeunk Pond	Lee	216 hectares
Mattanawcook Pond	Lincoln	331 hectares
Mud Pond	Linneus	7 hectares
Patten Pond	Hampden	18 hectares
Pickerel Pond	Alton	31 hectares
Pug Pond	Alton	4 hectares
Pushaw Lake	Orono	2046 hectares
Snap Pond	Lincoln	78 hectares
Swetts Pond	Orrington	40 hectares
Thurston Pond	Bucksport	59 hectares
Upper Cold Stream Pd.	Lincoln	72 hectares
Upper Pond	Lincoln	297 hectares
Weir Pond	Lee	21 hectares
West Garland Pond	Garland	12 hectares
Williams Pond	Bucksport	31 hectares
TOTAL	5,479 hectares	(13,533 acres)

LAKE VULNERABILITY INDEX

MINOR COASTAL BASINS
EXTREMELY VULNERABLE LAKES AND PONDS

Adams Pond	Boothbay	28 hectares
Bauneg Beg Pond	Sanford	76 hectares
Beaver Dam Pond	Berwick	4 hectares
Brimstone Pond	Arundel	4 hectares
Cox Pond	South Berwick	3 hectares
Ell Pond	Sanford	13 hectares
Estes Lake	Sanford	143 hectares
Grassy Pond	Rockport	5 hectares
Hosmer Pond	Camden	22 hectares
Houghton Pond	West Bath	5 hectares
Howard Pond	St. George	5 hectares
Knickerbocker Pond	Boothbay	38 hectares
Knights Pond	South Berwick	20 hectares
Leighs Mill Pond	South Berwick	16 hectares
Scituate Pond	York	17 hectares
Warren Pond	South Berwick	10 hectares
Wiley Pond	Boothbay	5 hectares
York Pond	Eliot	19 hectares

TOTAL 433 hectares (1070 acres)

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PRESUMPSCOT RIVER BASIN
EXTREMELY VULNERABLE LAKES AND PONDS

Cold Rain Pond	Naples	15 hectares
Forest Lake	Windham	82 hectares
Highland Lake	Windham	252 hectares
Lilly P Lilly Pond	New Gloucester	9 hectares
Little Duck Pond	Windham	13 hectares
Little Rattlesnake Pond	Raymond	140 hectares
Little Sebago Lake	Windham	78 hectares
Lower Mud Pond	Windham	2 hectares
Nubble Pond	Raymond	8 hectares
Owl Pond	Casco	4 hectares
Pettingill Pond	Windham	15 hectares
Upper Mud Pond	Windham	1 hectares

TOTAL 619 hectares (1529 acres)

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SACO RIVER BASIN
EXTREMELY VULNERABLE LAKES AND PONDS

Bonny Eagle Pond	Buxton	82 hectares
Killick Pond	Hollis Center	20 hectares
Little Watchic Pond	Standish	16 hectares
Rich Mill Pond	Standish	30 hectares

TOTAL 148 hectares (366 acres)

LAKE VULNERABILITY INDEX

MINOR COASTAL BASINS
HIGHLY VULNERABLE LAKES AND PONDS(Cont'd)

South Pond	Warren	212 hectares
Spaulding Pond	Lebanon	44 hectares
Sprague Pond	Phippsburg	3 hectares
Spring Pond	Washington	7 hectares
Square Pond	Acton	340 hectares
Stevens Pond	Liberty	114 hectares
Swan Pond	Lyman	52 hectares
Swan Pond	Acton	4 hectares
The Tarn	Bar Harbor	7 hectares
Tilden Pond	Belmont	140 hectares
Torrey Pond	Deer Isle	9 hectares
Town House Pond	Lebanon	42 hectares
Trues Pond	Montville	64 hectares
Upper Breakneck	Bar Harbor	2 hectares
Upper Hadlock Pond	Mount Desert	15 hectares
Upper Mason Pond	Belfast	31 hectares
Upper Patten Pond	Ellsworth	142 hectares
Washington Pond	Washington	226 hectares
Wattuh Lake	Phippsburg	10 hectares
Webber Pond	Bremen	93 hectares
Wilson Lake	Acton	119 hectares
Witch Hole Pond	Bar Harbor	9 hectares
TOTAL		11,078 hectares (27363 acres)

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SACO RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Adams Pond	Newfield	82 hectares
Balch Pond	Newfield	210 hectares
Bartlett Pond	Waterboro	10 hectares
Bickford Pond	Porter	83 hectares
Black Pond	Porter	18 hectares
Boyd Pond	Limington	10 hectares
Burnt Meadow Pond	Brownfield	27 hectares
Chapman Pond	Porter	4 hectares
Clemons Pond	Hiram	34 hectares
Colcord Pond	Porter	89 hectares
Doles Pond	Limington	8 hectares
Farrington Pond	Lovell	23 hectares
Holland Lake	Limerick	72 hectares
Horne Pond	Limington	53 hectares
Ingalls Pond	Baldwin	10 hectares
Jaybird Pond	Porter	3 hectares

LAKE VULNERABILITY INDEX

SACO RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS (cont'd.)

Little Clemons Pond	Hiram	12 hectares
Little Ossippee Pond	Waterboro	182 hectares
Mine Pond	Porter	20 hectares
Moose Pond (B#1)	Bridgton	131 hectares
Moose Pond (B#2)	Bridgton	345 hectares
Mud Pond	Newfield	4 hectares
Parker Pond	Lyman	9 hectares
Pequawket Pond	Brownfield	33 hectares
Pickerel Pond	Limerick	20 hectares
Pinkham Pond	Newfield	18 hectares
Plain Pond	Porter	6 hectares
Poverty Pond	Newfield	60 hectares
Round Pond	Newfield	1 hectare
Sand Pond	Baldwin	21 hectares
Smarts Pond	Newfield	5 hectares
Southeast Pond	Hiram	61 hectares
Spectacle Pond (B#1)	Porter	16 hectares
Spectacle Pond (B#2)	Porter	14 hectares
Stanley Pond	Porter	55 hectares
Symmes Pond	Newfield	12 hectares
Trafton Pond	Porter	23 hectares
Turner Pond	Newfield	14 hectares
Unnamed Pond	Limington	10 hectares
Wards Pond	Limington	17 hectares
Watchic Pond	Standish	176 hectares
TOTAL		2,001 hectares (4942 acres)

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PRESUMPSCOT RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS

Adams Pond	Bridgton	17 hectares
Bay of Naples Lake	Naples	297 hectares
Beaver Pond	Bridgton	28 hectares
Coffee Pond	Casco	41 hectares
Collins Pond	Windham	15 hectares
Crystal Lake	Harrison	174 hectares
Crystal Pond	Gray	76 hectares
Dumpling Pond	Casco	11 hectares
Highland Lake	Bridgton	524 hectares
Holt Pond	Bridgton	12 hectares
Ingalls Pond	Bridgton	55 hectares
Island Pond	Waterford	42 hectares
Little Sebago Lake(B#2)	Windham	552 hectares
Little Sebago Lake(B#4)	Windham	125 hectares
Long Lake	Bridgton	2097 hectares

LAKE VULNERABILITY INDEX

MINOR COASTAL BASINS
HIGHLY VULNERABLE LAKES AND PONDS

Alewife Pond	Arundel	16 hectares
Aunt Betty Pond	Bar Harbor	12 hectares
Birch Harbor Pond	Winter Harbor	6 hectares
Biscay Pond	Damariscotta	145 hectares
Boyd Pond	Bristol	23 hectares
Branch Lake	Ellsworth	1094 hectares
Bubble Pond	Bar Harbor	13 hectares
Bunganut Pond	Lyman	116 hectares
Burntland Pond	Stonington	9 hectares
Cain Pond	Searsport	13 hectares
Cargill Pond	Liberty	23 hectares
Chickawaukie	Rockport	137 hectares
Chicken Mill Pond	Gouldsboro	5 hectares
Coleman Pond	Lincolnville	82 hectares
Crawford Pond	Warren	232 hectares
Crystal Pond	Washington	40 hectares
Damariscotta Lake	Nobleboro	1752 hectares
Duckpuddle Pond	Waldoboro	98 hectares
Eagle Lake	Bar Harbor	177 hectares
Echo Lake	Mount Desert	92 hectares
Ellis Pond	Brooks	34 hectares
Fish Pond	Hope	52 hectares
Forbes Pond	Gouldsboro	81 hectares
Forest Pond	Friendship	3 hectares
Fourth Pond	Blue Hill	16 hectares
Fresh Pond	North Haven	35 hectares
Goose Pond	Swans Island	5 hectares
Granny Kent Pond	Shapleigh	20 hectares
Hansen Pond	Acton	10 hectares
Hastings Pond	Bristol	4 hectares
Havener Pond	Waldoboro	32 hectares
Hobbs Pond	Hope	106 hectares
Hodgdon Pond	Tremont	17 hectares
Iron Pond	Washington	6 hectares
Isinglass Pond	Waterboro	12 hectares
Jones Pond	Gouldsboro	183 hectares
Jordan Pond	Mount Desert	72 hectares
Kalers Pond	Waldoboro	29 hectares
Kennebunk Pond	Lyman	80 hectares
Knight Pond	Northport	44 hectares
Lake Wood	Bar Harbor	6 hectares
Levenseller Pond	Searsmont	15 hectares
Lilly Pond	Rockport	12 hectares
Lily Pond	Deer Isle	10 hectares
Lily Pond	Edgecomb	23 hectares
Little Medomak Pond	Waldoboro	30 hectares
Little Ossippee Flow	Waterboro	163 hectares
Little Pond	Damariscotta	28 hectares

LAKE VULNERABILITY INDEX

MINOR COASTAL BASINS
HIGHLY VULNERABLE LAKES AND PONDS(Cont'd)

Little Poverty Pond	Shapleigh	6 hectares
Little Round Pond	Mount Desert	6 hectares
Long Pond	Mount Desert	304 hectares
Long Pond	Mount Desert	12 hectares
Loon Lake	Acton	35 hectares
Lower Breakneck	Bar Harbor	2 hectares
Lower Hadlock Pond	Mount Desert	13 hectares
Lower Mason Pond	Belfast	13 hectares
Lower Patten Pond	Ellsworth	370 hectares
Lowry Pond	Searsmont	31 hectares
Maces Pond	Rockport	12 hectares
Marsfield Pond	Hope	11 hectares
McCurdy Pond	Bremen	83 hectares
Medomak Pond	Waldoboro	92 hectares
Meetinghouse Pond	Phippsburg	3 hectares
Megunticook Lake(B#1)	Lincolnville	339 hectares
Megunticook Lake(B#2)	Lincolville	126 hectares
Middle Branch Pond	Alfred	17 hectares
Mill Pond	Appleton	14 hectares
Milton Pond	Lebanon	90 hectares
Mirror Lake	Rockport	44 hectares
Moody Pond	Lincolnville	26 hectares
Moose Pond	Acton	10 hectares
Mousam Lake(B#1)	Shapleigh	260 hectares
Mousam Lake(B#2)	Shapleigh	89 hectares
Northeast Pond	Lebanon	317 hectares
Northwest Pond	Waterboro	14 hectares
Norton Pond	Lincolville	41 hectares
Noyes Pond	Blue Hill	8 hectares
Paradise Pond	Damariscotta	60 hectares
Passawaukeag Lake	Brooks	46 hectares
Pemaquid Pond	Waldoboro	583 hectares
Pitcher Pond	Northport	146 hectares
Roberts Pond	Lyman	85 hectares
Rocky Pond	Orland	63 hectares
Rocky Pond	Rockport	5 hectares
Ross Pond	Bristol	7 hectares
Round Pond	Mount Desert	17 hectares
Round Pond	Lyman	1 hectare
Round Pond	Union	98 hectares
Seal Cove Pond	Tremont	96 hectares
Sennebec Pond	Union	215 hectares
Seven Tree Pond	Warren	212 hectares
Shaker Pond	Alfred	35 hectares
Shapleigh Lake	Shapleigh	32 hectares
Sidensparker Pond	Waldoboro	59 hectares
Silver Lake	Phippsburg	5 hectares
Somes Pond	Mount Desert	36 hectares

LAKE VULNERABILITY INDEX

PRESUMPSCOT RIVER BASIN
HIGHLY VULNERABLE LAKES AND PONDS (cont'd.)

Notched Pond	Raymond	29 hectares
Otter Pond	Bridgton	35 hectares
Panther Pond	Raymond	571 hectares
Parker Pond	Casco	64 hectares
Peabody Pond	Sebago	284 hectares
Pleasant Lake	Otisfield	531 hectares
Rattlesnake Pond	Raymond	290 hectares
Sabathday Pond	New Gloucester	134 hectares
Thomas Pond	Casco	201 hectares
Trickey Pond	Naples	122 hectares
Wood Pond	Bridgton	183 hectares
TOTAL		6,510 hectares (16,080 acres)

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ALL BASINS

Extremely Vulnerable Lakes and Ponds = 2,638 hectares (6,516 acres) = 0.7% total lake and pond acreage in Maine)

Highly Vulnerable Lakes and Ponds = 45,202 hectares (111,649 acres) = 11.2% of total lake and pond acreage in Maine

APPENDIX B

WATER CLASSIFICATION PROGRAM SUMMARY

Table 1. Maine Water Classification Program - Designated Uses and Allowable Discharges

	WATERBODY TYPES AND THEIR CLASSES											
	Rivers & Streams				Lakes	Estuarine & Marine			Groundwater*			Wetlands***
	AA	A	B	C	GPA	SA	SB	SC	GW-A	GW-B		
DESIGNATED USES												
Public water supply									X			
Drinking water after disinfecting	X	X			X							
Drinking water after treatment			X	X								
Recreation in and on the water	X	X	X	X	X	X	X	X				
Fishing	X	X	X	X	X	X	X	X				
Habitat	X	X	X	X	X	X	X	X				
Industrial process & cooling water supply		X	X	X	X		X	X				
Hydroelectric power generation		X	X	X	X		X	X				
Aquaculture (Finfish)							X	X				
Shellfish propagation & harvest						X	X	X**				
Navigation	X	X	X	X	X	X	X	X				
DISCHARGES												
No New Discharges	X				X	X						
Effluent quality > or = receiving waters		X										
Licensed prior to 1/1/86 can remain until alternative exists		X			X							
No new discharge that would cause closing of open shellfish waters							X					

NOTES: Shaded block means "Not Applicable"

* All groundwater currently classified as GW-A

** Restricted harvest (depuration may be required)

*** Wetlands have not yet been incorporated into the Water Classification Program

Table 2. Maine Water Classification Program - Water Quality Standards

	WATERBODY TYPES AND THEIR CLASSES											
	Rivers & Streams				Lakes	Estuarine & Marine			Groundwater***		Wellands
	AA	A	B	C	GPA	SA	SB	SC	GW-A	GW-B	
BACTERIA											
Natural	X	X				X					
May 15 - Sep 30, E.Coli < 64/dl geom., < 427/dl instantaneous			X								
May 15 - Sep 30, E.Coli < 142/dl geom., < 949/dl instantaneous				X							
May 15 - Sep 30, enterococcus bacteria < 8/dl geom., < 54/dl instantaneous							X				
May 15 - Sep 30, enterococcus bacteria < 14/dl geom., < 94/dl instantaneous								X			
E.Coli < 29/dl geom., < 124/dl instantaneous					X						
DISSOLVED OXYGEN											
Natural	X					X					
7 ppm or 75% of saturation		X	X*								
5 ppm or 60% of saturation				X**							
> 85% of saturation							X				
> 70% of saturation								X			
AQUATIC LIFE											
Natural	X	X				X					
All indigenous aquatic species supported, no detrimental changes in biological community			X				X				
All indigenous species of fish supported, structure and function of resident biological community maintained				X				X			

NOTES: Shaded block means "Not Applicable"

* Oct 1 - May 14, 7-day mean DO > or = 9.5 ppm, 1-day min. DO > or = 8 ppm in identified fish spawning areas

** Except in identified salmonid spawning areas. Here water quality sufficient for spawning, egg incubation, and early life stage survival must be maintained

*** All groundwater currently classified as GW-A

Table 3. Maine Water Classification Program - Habitat Characterizations and Trophic State

	WATERBODY TYPES AND THEIR CLASSES												
	Rivers & Streams					Lakes		Estuarine & Marine				Groundwater*			Wetlands **
	AA	A	B	C		GPA		SA	SB	SC		GW-A	GW-B		
HABITAT CHARACTERIZATION															
Natural	X	X				X		X							
Unimpaired			X						X						
Free-flowing	X							X							
TROPHIC STATE															
Trophic state stable or decreasing						X									
No algal blooms						X									
No change in landuse in watershed that would impair designated use or increase trophic state						X									

NOTES: Shaded block means "Not Applicable"

* All groundwater currently classified as GW-A

** Wetlands have not yet been incorporated into the Water Classification Program

APPENDIX C

BMP LISTS

AGRICULTURE BMPs AND CONTROL BENEFITS

BMPs	Nutrients	PH	SEDIMENT	ORGANIC ENRICHMENT	PATHOGENS	TOXIC ORGANICS	TOXIC METALS	OILS & GREASES	SALTS	HYDROLOGIC MOD	THERMAL MOD	PESTICIDES
COVER CROPPING	S/G		S									
CONSERVATION TILLAGE			S									
CONTOUR FARMING			S									
CROP ROTATION	S/G		S									
CROP RESIDUE USE			S									
CRITICAL AREA PLANTING			S									
DIVERSION/TERRACE			S									
FIELD STACKING AREA	S			S	S							
FIELD WINDBREAK			S									
FENCING/LIVESTOCK EXCLUSION	S		S	S	S							
FILTER STRIPS	S/G		S	S	S							S
GRASSED WATERWAY			S									
IRRIGATION TAILWATER RECOV.	S											S
HEAVY USE AREA PROTECTION	S		S	S	S							
MULCHING			S									
PROPER FERTILIZER APPLICATION	S/G											
PROPER PESTICIDE APPLICATION												S/G
ROOF RUNOFF CONTROL	S		S	S	S							
STRUCTURE FOR WATER CONTROL			S									
SEDIMENT BASIN	S		S	S	S							
WASTE UTILIZATION	S/G			S	S							
WASTE STORAGE FACILITY	S/G			S	S							
RIPARIAN AREAS	S/G		S		S	S	S	S				S
COMPOST/DEHYDRATION	USUALLY PROCESSED WASTE IS SOLD											

To the extent that methods reduce sedimentation by reducing runoff, they also protect surface water quality from pesticides and, in some cases, pathogens

SILVICULTURAL BMPs AND CONTROL BENEFITS

	NUTRIENTS	PH	SEDIMENT	ORGAN. ENRICH.	PATHOGENS	TOXICS ORGANICS	TOXICS METALS	OILS & GREASES	SALTS	HYDROLOGIC MOD	THERMAL MOD	PESTICIDES	
ACCESS ROAD			S										
FILTER STRIPS			S	S									
STRUCTURES FOR STREAM CROSSING			S							S			
CRITICAL AREA STABILIZATION			S										
PROPER ROAD LOCATION			S										
DIVERSIONS/ WATER BARS			S										
PROPER CUTTING PRACTICES			S							S	S		
STRUCTURES FOR WATER CONTROL			S										
PROPER SITING OF YARDING AREAS			S	S									
PROPER TIMING OF HARVEST			S										

RESOURCE EXTRACTION BMPs and CONTROL BENEFITS

	NUTRIENTS	PH	SEDIMENT	ORGANIC ENRICHMENT	PATHOGENS	TOXICS ORGANICS	TOXICS METALS	OILS & GREASES	SALTS	HYDROLOGIC MOD	THERMAL MOD	PESTICIDES	
Access Road			S										
PHASED RES. EXTRACTION			S				S			S	S		
SEDIMENT BASINS			S				S						
BUFFER FILTER AREAS			S				S				S		
CRITICAL AREA STABILIZATION			S				S						

CONSTRUCTION BMP's AND CONTROL BENEFITS

	NUTRIENTS	PH	SEDIMENT	ORGANIC ENRICHMENT	PATHOGENS	TOXICS ORGANICS	TOXICS METALS	OILS & GREASES	SALTS	HYDROLOGIC MOD	THERMAL MOD	PESTICIDES	
CRITICAL AREA STABILIZATION			S										
DIVERSION TEMP & PERM			S										
PLANTING			S										
RIP RAP			S										
SEDIMENT BASINS			S					S		S			
FILTER FABRIC			S										
FILTER STRIPS			S					S					
STRUCTURE FOR WATER CONTROL			S							S			
DETENTION BASIN			S					S		S			
PHASED CONSTRUCTION			S							S			
CLUSTER DEVELOPMENT			S							S	S		
PROPER SITING			S	S						S	S		
PROPER WASTE DISPOSAL			S	S									

APPENDIX D

NONPOINT SOURCE ADVISORY COMMITTEE MEMBERS

MAINE NONPOINT SOURCE POLLUTION ADVISORY COMMITTEE

SI BALCH (PIIO)
BOISE CASCADE CORP.
RUMFORD, MAINE 04276

JIM BERNARD
STATE PLANNING OFFICE
STATE HOUSE STATION 38
AUGUSTA, MAINE 04333

DERRILL COWING
USGS
26 GANNISTON DRIVE
AUGUSTA, MAINE 04330

JACK DIRKMAN
DOC--FORESTRY
STATE HOUSE STATION 22
AUGUSTA, MAINE 04333

PAUL DUTRAM
STATE PLANNING OFFICE
STATE HOUSE STATION 38
AUGUSTA, MAINE 04333

DR. TOM EASTLER
DEPT. OF GEOLOGY
U. MAINE-FARMINGTON
FARMINGTON, MAINE 04938

JOHN EDWARDS
ATTORNEY GENERAL'S OFFICE
STATE HOUSE STATION 6
AUGUSTA, MAINE 04333

FRANK FIORE
DEP - WATER BUREAU
STATE HOUSE STATION 17
AUGUSTA, MAINE 04333

CARLTON FITZGERALD (MACD)
DEPT. AGRICULTURE
STATE HOUSE STATION 28
AUGUSTA, MAINE 04333

WALTER FOSTER
DEPT. MARINE RESOURCES
STATE HOUSE STATION 21
AUGUSTA, MAINE 04333

BART HAGUE
USEPA - REGION I
JFK FEDERAL BUILDING
BOSTON, MA 02202-2211

JERRY HAINES
ASSOC. GEN. CONTRACTORS OF ME
PO BOX N
AUGUSTA, MAINE 04330

VAUGHN HOLYOKE
ME. COOP. EXTENSION SERVICE
UNIVERSITY OF MAINE
ORONO, MAINE 04473

JOHN JAMES
DEP - LAND BUREAU
STATE HOUSE STATION 17
AUGUSTA, MAINE 04333

TED JOHNSTON
ME. FOR. PROD. CON.
146 STATE STREET
AUGUSTA, MAINE 04330

ELERY KEENE
NKRPC
7 BENTON AVENUE
WINSLOW, MAINE 04901

ALICE KNAPP
MAINE CH. OF COM. & IND.
126 SEWALL STREET
AUGUSTA, MAINE 04330

ESTHER LACOGNATA
DEPT. AGRICULTURE
STATE HOUSE STATION 28
AUGUSTA, MAINE 04333

MAINE AUDUBON SOCIETY
118 OLD ROUTE ONE
FALMOUTH, MAINE 04105
KARIN TILBERG

DAVID MAXWELL
DEP - SOLD WASTE BUREAU
STATE HOUSE STATION 17
AUGUSTA, MAINE 04333

CHRIS OLSEN
DEPT. TRANSPORTATION
STATE HOUSE STATION 16
AUGUSTA, MAINE 04333

DAVID ROCQUE(SWCC)
DEPT. AGRICULTURE
STATE HOUSE STATION 28
AUGUSTA, MAINE 04333

CHUCK ROSSOL
DEPT. HUMAN SERVICES
STATE HOUSE STATION 11
AUGUSTA, MAINE 04333

MIKE ROY (MMA)
TOWN OFFICE
VASSALBORO, MAINE 04989

GEORGE SEEL
DEP - OIL & HAZARDOUS BUREAU
STATE HOUSE STATION 17
AUGUSTA, MAINE 04333

ESPERANZA STANCIOFF
COOPERATIVE EXT. SERV.
375 MAIN STREET
ROCKLAND, MAINE 04841

STEVE TIMPANO
DEPT. IF&W
STATE HOUSE STATION 41
AUGUSTA, MAINE 04333

FRED TODD
DOC—LURC
STATE HOUSE STATION 22
AUGUSTA, MAINE 04330

ED WASHBURN
NATURAL RESOURCES COUNCIL
271 STATE STREET
AUGUSTA, MAINE 04330

CHARLES WHITMORE
SCS - USDA BUILDING
ORONO, MAINE 04473

MIKE KAPLAN(AUDUBON)
443 CONGRESS ST.
PORTLAND, MAINE 04101

MARY BOYD-BROEMEL
DECD-OCP
STATION 130
AUGUSTA, MAINE 04333

APPENDIX E

ATTORNEY GENERAL'S CERTIFICATION LETTER

THE ATTORNEY GENERAL'S CERTIFICATION OF ADEQUATE LEGAL AUTHORITY TO IMPLEMENT NONPOINT SOURCE MANAGEMENT PROGRAM

I, James E. Tierney, hereby certify, pursuant to my authority as the Attorney General of the State of Maine and in accordance with Section 319(b)(2)(D) of the Federal Water Pollution Control Act, that in my opinion the laws of the State of Maine provide adequate authority to carry out actions detailed in the "Nonpoint Source Pollution Management Plan" to be submitted to the United States Environmental Protection Agency by the Maine Department of Environmental Protection ("Department"). In those instances where there is not presently such adequate authority to implement a specified program, that authority will be sought by the Department through legislation.

Implementation of Best Management Practices set forth in Section 3, pages 10-12; and Section 4.2, pages 38-47 of the Management Plan would require additional legislation to implement. Section 3, pages 10-12, as set forth is not fully developed, but there is adequate authority under present law to carry out the actions thus far detailed. In those instances where the Plan indicates that changes in the Department's enforcement procedures are anticipated, whether adequate authority presently exists can only be determined when the perimeters of the specific program have been fully developed. If it is determined at that time that adequate

authority does not exist, then the Department will seek appropriate legislation.

I neither certify nor make any representation as to the availability of funds to implement the Department's Management Program.

Dated: September , 1989

JAMES E. TIERNEY
Attorney General

SIGNED COPY TO BE SUBMITTED UNDER SEPARATE COVER