

## STATE OF MAINE

# MAINE NONPOINT SOURCE CONTROL PROGRAM: PROGRAM UPGRADE AND 15 YEAR STRATEGY

9/23/99

### PART ONE: INTRODUCTION

The State of Maine (State) is submitting this document to the United States Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) in satisfaction of both the nonpoint source pollution control (NPS) program upgrade mandate under Section 319 of the Clean Water Act and the 15 year coastal nonpoint source program planning mandate under Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. In accordance with joint EPA-NOAA guidance dated March 11, 1999, the State has coordinated development of a single, unified NPS program document. This unified approach reflects the fact that the State intends to continue to plan, implement, and prioritize actions to address NPS problems on a statewide basis. This approach will also help avoid undue duplication of effort, assist the State in its goal of developing a single and efficient program for addressing non-point source issues, and will facilitate State efforts to focus available resources on priority issues.

This document is organized as follows:

- **Part One, Introduction**, following this outline of the document's contents, provides context and background information regarding the federal NPS programs prompting preparation of this plan;
- **Part Two, Nine Key Elements Summary**, is required by the Section 319 guidance and serves as a general overview of the State's NPS Program and its primary long and short term goals and objectives;
- **Part Three, 15 Year Strategy and Five Year Implementation Plans**, provides an overview of the strategy, and provides a detailed Phase 1 (2000-2004) implementation plan that outlines specific actions, organized by NPS source category, that the State will take to reach the goals articulated in Part Two, Key Element 1 and to implement applicable management measures in accordance with Section 6217 of CZARA;

- **Part Four, Approach and Schedule for Tracking Progress and Making Mid-Course Corrections**, describes the means by which the State as a part of its 15 year strategy will measure progress toward full implementation of its NPS goals and implementation of the CZARA management measures and periodically identify mid-course corrections, needed program changes and improvements;
- **Part Five, Use of Backup Authority and Additional Management Measures**, submitted for Coastal NPS Program purposes, describes the manner in which the State will use backup authority and adoption of additional management measures to meet coastal water quality objectives;
- **Part Six, Examples of Water Quality Improvement Due to NPS Implementation Activities**, presents examples of successes in addressing NPS problems in Maine; and
- **Part Seven, TMDLs: State Approach to Restoring Waters Listed Under 303(d) of the Clean Water Act**, explains the manner in which the State will integrate action on TMDL waters into its NPS Program.

## **I. Background: 319 Program Upgrade**

In 1989, pursuant to Section 319 of the federal Clean Water Act (33 U.S.C. § 1329), the Maine Department of Environmental Protection (DEP) submitted and EPA approved an Assessment Report describing the State's major NPS problems and existing State programs to address land-based nonpoint sources and a NPS Management Plan (NPS Plan) to address those pollution sources. As a result of that EPA approval, the State has been eligible to receive federal funds to assist in implementation of its NPS Plan. To date, federal assistance has significantly improved the State's ability to control water pollution caused by nonpoint sources. Since 1990, the number of DEP staff dedicated solving NPS problems has increased, and DEP and other State agencies have embraced a watershed approach to solving NPS pollution problems. Local watershed groups have also increased in number and become more sophisticated. Last year, for example, Maine voters enacted a \$500,000 State bond issue to support watershed management projects, and in so doing attested to the general public's growing awareness of NPS pollution and the need to address the problem on a watershed basis.

In 1991, the Maine Legislature enacted a Nonpoint Source Water Pollution Management Program statute to restore and protect water resources from NPS pollution. The basic program objective is to prompt use of State agency defined "best management practice guidelines" (BMPs) to prevent water pollution. DEP is the State's lead water quality agency and lead agency for the NPS Program which it administers in coordination with other State, federal, and local governmental agencies as well as non-governmental stakeholder organizations and individuals. Four State departments (Transportation, Agriculture, Conservation and Environmental Protection) are responsible for developing and implementing specific BMPs for the nine major

categories of NPS pollution as outlined in the State's 1989 NPS Plan and, along with the State Planning Office, the State's lead agency under the Maine Coastal Program, are DEP's primary partners in addressing NPS issues. These nine categories are Agriculture, Forestry, Development, Resource Extraction, Transportation Facilities and Support, Chemical Use and Storage, Solid Waste Disposal, Marine Industries, and Hydrologic Modification.

The State's current NPS Plan describes actions to encourage widespread implementation of the BMPs for each source category. Major actions include: BMPs development; information and education outreach; technical assistance to help people use the BMPs; financial assistance for NPS projects; and State laws and rules and municipal ordinances that require use of specific BMPs. The Plan directs efforts on a statewide basis and on specific water bodies listed as "priority waters." This document serves to upgrade the State's NPS Plan in accordance with EPA guidance under Section 319 of the Clean Water Act. The upgrade is necessary to retain the State's eligibility for Clean Water Act funds to address NPS issues.

## **II. Background: Coastal Non-Point Source Pollution Control Program**

Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 required states to amend their nonpoint source management plans to comply with federal guidelines focused on nonpoint sources that affect coastal waters. In July 1995, pursuant to Section 6217 of the Coastal Zone Act Reauthorization amendments ("CZARA"), the State submitted for approval by the National Ocean and Atmospheric Administration (NOAA) and EPA the *Maine Coastal Nonpoint Source Control Program* (Coastal NPS Program). By letter dated February 23, 1998, NOAA and EPA provided their *Findings for the Maine Coastal Nonpoint Source Pollution Control Program* (6217 Findings). Effective as of the date of the letter, the 6217 Findings approved Maine's Coastal NPS Program in accordance with Section 6217(c)(1) of CZARA, subject to several conditions.

By letter dated May 1, 1998, the Land and Water Resources Council<sup>1</sup> on behalf of the multiple State agencies responsible for implementing the Coastal NPS Program and related initiatives replied to the 6217 Findings stating concerns about the State's ability to meet fully certain conditions and to request clarification of several conditions. On November 19, 1998, State agency staff met with NOAA and EPA staff to discuss the status of the State's efforts to address the conditions of approval and the State's questions and concerns.

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<sup>1</sup>The Council is established to advise the Governor, the Legislature, and State agencies in the formulation of State policy regarding natural resources management to achieve State environmental, social, and economic objectives. The Legislature has conferred on the Council broad authority to consider natural resources issues of statewide significance and to counsel the Governor and Legislature on policy options for management and protection of natural resources. 5 M.R.S.A. §3331, sub-§2. The Council's members are Commissioners of the Departments of Agriculture, Food and Rural Resources, Conservation, Economic and Community Development, Environmental Protection, Fish and Wildlife, Human Services, Marine Resources, and Transportation, as well as the chair of the Atlantic Salmon Authority and the Director of the State Planning Office, who serves as chair.

Prior to the November 19, 1998 meeting, by letter dated October 16, 1998, NOAA and EPA had released the above referenced *Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990* (Final Administrative Changes). The Preamble to the Final Administrative Changes explains that "the changes may impact previous findings and conditions on state coastal nonpoint programs" and that "in such cases, EPA and NOAA will review those findings and conditions and make any necessary adjustments (including, where appropriate, elimination of conditions)." The Final Administrative Changes outline ways in which NOAA and EPA will work with states to target available resources to priority coastal nonpoint source issues, to secure approval for reliance on voluntary or incentive-based programs backed up by existing state enforcement authorities, and to develop documentation of planning to implement state programs.

The Final Administrative Changes direct states to prepare a 15 year strategy and a series of three five year implementation plans for full implementation of applicable management measures within the 15 year planning period. In addition, joint EPA-NOAA guidance encouraged coordination of state NPS planning for the 319 and 6217 programs. The State is submitting this document in satisfaction of the planning directives in the Final Administrative Changes. The State intends to continue to employ a mix of regulatory and non-regulatory tools to ensure implementation of the 6217 program management measures, and to rely on backup authority to enforce these practices.<sup>2</sup>

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<sup>2</sup>In accordance with the Final Administrative Changes, the State is under separate cover providing a legal opinion from the State's Department of Attorney General that explains the legal basis for the State's reliance on backup legal authorities for implementation of management measures developed pursuant to Section 6217 of CZARA and for remediation and prevention of adverse impacts on state waters due to nonpoint sources of pollution. With this opinion, the State will also provide additional information outlining the process by which use of backup enforcement authority may be triggered and the lines of communication by which the need for use of backup authority will be effectively communicated to enforcement agencies.

## **PART TWO: NINE KEY ELEMENTS SUMMARY**

In May 1998, EPA issued a memo describing the "*Process for Approval of Upgraded State and Territorial Nonpoint Source Management Programs.*" The memo advises states to strengthen their NPS management programs so that they are consistent with the *Nine Key Elements of Effective and Dynamic State Nonpoint Source Management Programs.* In consultation with states, EPA developed and in 1996 adopted the *Nine Keys* guidance as national NPS Program guidance. This Part describes what the State has done and plans to do to upgrade the State's NPS Program in accordance with the *Nine Keys* guidance and further direction from EPA, Region 1, and articulates long term (15 year) goals and interim (5 year) program goals to ensure continuing progress. These goals include implementation of the coastal NPS management measures. Part Four discusses the means by which the State intends to measure progress.

### **Key Element 1. The State program contains explicit short- and long-term goals, objectives and strategies to protect surface and ground water.**

This section articulates the overall aim of the State's NPS Program and the State's short term (five year) and long term (fifteen year) NPS Program goals. Also summarized are the major actions<sup>3</sup> that the State intends to undertake in addressing its five year goals. By 2015, through actions to implement the following goals, the State intends to provide for implementation of the 56 management measures designated by Section 6217 of CZARA.

#### **I. Overall Aims of the State's NPS Water Pollution Control Program**

- **Clean Water.**  
Prevent, control, or abate water pollution caused by nonpoint sources so that beneficial uses of water resources are maintained or restored and waters meet or exceed their classification standards.
- **Using Best Management Practices (BMPs).**  
BMPs are widely used in all Maine's watersheds to minimize transport of pollutants or excessive runoff from the land into surface or ground waters.

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<sup>3</sup> These actions are further detailed in Part Three, which contains tables outlining the State's five year plan (2000-2004) to ensure continuing progress in meeting NPS Program goals and implementing 6217 program management measures. These tables are divided into the following NPS categories: Agriculture, Forestry, Urban Sources (Urban Runoff, Construction Activities, Existing Development, On-site Disposal Systems, Pollution Prevention and Roads, Highways and Bridges); Marinas and Boatyards; Hydromodification; and Wetlands.

- **Locally Supported Watershed Stewardship.**  
Local community awareness results in commitment to maintaining or improving the condition of local water resources through citizen action. Watershed stewardship meets community needs and maintains beneficial uses of local water resources.
- **Compliance with Applicable Laws.**  
Regulated activities are in compliance with existing State and Federal laws and rules that relate to nonpoint source pollution abatement.

## **II. NPS Program Goals**

### **A. Land and Water Quality Protection and Restoration Goals**

The following, excerpted from the draft federal fiscal year 2000 DEP/EPA Performance Partnership Work Plan, are the pertinent land and water quality protection and restoration goals:

#### **1. Overall Land and Water Quality Program Goal**

To ensure that land and water resources are protected, restored, and enhanced as ecological systems supporting both the natural world and human activities, and to ensure that all waters of the State meet or exceed their classification standards.

#### **2. Lakes and Ponds**

By 2005, the overall trophic state of Maine lakes will be stable or improving. The State will continue and improve monitoring for toxic contamination in lakes to remove fish consumption advisories.

#### **3. Rivers and Streams**

By 2005, through decrease in pollutants from combined sewer overflows and other sources, excluding dioxin, reduce by 65 miles the portions of Maine rivers and streams that do not meet the fishable/swimmable goal or other applicable water quality standards. By 2000, eliminate a fish consumption advisories on Maine rivers due to dioxin.

#### **4. Estuarine and Marine Areas**

By 2005, reduce by 10% the square area of estuarine and marine habitat in non attainment due to bacterial contamination, and reduce the square miles not supporting designated uses due to other causes. By 2005, develop an improved scientific basis to define non-attainment, impaired and threatened coastal waters so that measurable objectives may be set in relation to these causes.

## 5. Wetlands

Ensure that there is no net loss of wetlands functions and values, that wetlands of special significance are identified and protected, and that the loss of all wetlands due to regulated activity is minimized. Maintain and analyze a wetlands data base and improve assessment methods so that a measurable objective may be set.

## 6. Groundwater

By 2001, ensure the fundamental understanding and develop the data necessary to set measurable objectives for the protection of ground water quality and evaluation of the use, value and vulnerability of the State's groundwater resources.

## 7. Watersheds and Ecosystem Health

Continue to work to protect ecosystems and, by 2005, develop the information base needed to establish measurable objectives for the protection of ecosystem health.

## B. Nonpoint Source Category Control and Abatement Goals

The following goals and actions address control or abatement of land-based sources of water pollutants from major NPS categories<sup>4</sup>.

### 1. Developed Areas: Storm Water Management

**a. Long Term Goal:** By 2015, at least 75 towns in “most at risk” watersheds will have adopted ordinances that exceed the current State Stormwater Law requirements.

**b. 5 Year goal:** By 2005, all construction sites subject to the Storm Water Management law will comply with the law, and 25 towns in “watersheds most at risk” will implement programs to address storm water quality.

### c. Actions

- Administer the Site Location of Development Law and the Storm Water Management Law, which apply to new development.
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<sup>4</sup> Additional detail regarding DEP actions are listed in the Performance Partnership Work plan.

- Review permit applications for all large development (Site Law) and for other medium-sized development (Storm Water law) in lake and coastal watersheds that are defined as “most at risk” due to development, or are “sensitive or threatened” for consistency with water quality standards.
- By 7/1/01, Amend definition of watersheds of rivers and streams that are “most at risk” or “sensitive or threatened” and establish storm water standards for new development in those areas.
- DEP will develop literature to encourage towns in “watersheds most at risk” to implement programs to address storm water quality. With SPO, DEP will monitor towns’ progress in implementation.
- Conduct outreach and training on the Storm Water Management law for municipal officials, engineers, and developers
- Conduct pilot Nonpoint Source Education for Municipal Officials (NEMO) Program in the Casco Bay Watershed based on the model program developed by the University of Connecticut's Cooperative Extension Service.

## **2. Developed Areas: Erosion and Sedimentation**

**a. Long term Goal:** By 2015, an assessment survey of the usage of BMPs will indicate 90% compliance with the Erosion and Sedimentation Control (ESC) law . The law directs that adequate and timely temporary and permanent stabilization measures be used to prevent unreasonable erosion and sedimentation.

**b. 10 Year Goal.** By 2010, assessment of ESC law will show 70% compliance

**b. 5 Year Goal:** By 2005, achieve 50% compliance with ESC law, and use an assessment survey to re-evaluate goals for 2010 and 2015.

### **c. Actions**

- By 1/1/02, Establish a consistent basis for identifying “unreasonable erosion and sedimentation” that the pertinent regulatory authority (DEP or CEOs) would determine as actionable under the law;
- Conduct outreach to inform target audiences about how sedimentation harms water resources and the value of complying (on-going);
- Inform towns why and how they can use the ESC law to protect water resources and provide technical assistance to towns and CEOs that elect to assist people working to comply with the ESC law (on-going) ;

- Continue certifying proficiency of contractors in erosion and sediment control with the Voluntary Contractor Certification Program and responding to complaints about violations of the ESC law (on-going);
- By 1/1/03, establish an assessment survey method measuring the percentage of sites that comply with the ESC law; and
- Conduct the assessment survey in 2003, and in 2004 file a report and recommendations to Legislature evaluating past and projected compliance with the ESC law.
- By 1/1/03, Train CEO's on basis for determining "unreasonable erosion and sedimentation" for purposes of taking enforcement action under the ESC law.

### **3. Transportation Facilities and Support – State MDOT roads**

**a. Long Term Goal:** By 2015, all State highways, roads and bridges will be constructed and maintained to:

- Minimize erosion on-site and prevent sediment from leaving the job site;
- Road sanding management will be improved to achieve a 40% reduction the amount of winter sand applied to roads and maintain the current level of safe winter driving conditions; and
- "Road salt and sand/salt storage systems" will comply with DEP regulations intended to protect ground and surface waters.

**b. 5 Year Goal:** By 2005, all MDOT transportation projects shall comply with requirements for a sediment and erosion control plan and storm water management plan as set out in the MDOT BMP manual. By 2004, MDOT will achieve a 14% reduction in the amounts of winter sand applied to roads. DEP will continue to facilitate installation of road salt and sand/salt storage systems at high priority sites.

#### **c. Actions**

- Long term sedimentation control shall be maintained as required in the MDOT BMP manual (on-going);
- Implement new "Special Provision 107" of MDOT Standard Contract specifications which requires all MDOT contractors to include an erosion control plan and implementation costs in the bid price;

- Initiate through phased fleet replacement, a program to reduce road sand applications on MDOT maintained roads by 40%;
- Install “road salt and sand/salt storage systems” at 10 stockpile sites; and
- MDOT will give DEP an annual report to demonstrate that it is fully complying with the MDOT- DEP Memorandum of Agreement dated March 1998 (on-going).

#### **4. Transportation Facilities and Support – Municipal Roads**

**a. Long Term Goal:** By 2015, all municipalities will construct and maintain roads and ditches to prevent unreasonable erosion and sedimentation and comply with the ESC law which directs that "adequate and timely temporary and permanent stabilization measures will be used to prevent unreasonable erosion and sedimentation." Municipalities will use road salt and sand/salt storage systems that comply with DEP regulations intended to protect ground and surface waters.

**b. 10 Year Goal.** By 2010, assessment of ESC law will show 75% compliance;

**c.(1) 5 Year Goal:** By 2005, achieve 50% compliance with ESC law, and use an assessment survey to re-evaluate goals for 2010 and 2015;

**c. (2) 5 Year Goal:** By 2005, towns and counties with sand/salt piles most endangering ground waters will have been offered cost share assistance and constructed (or be in the process of constructing) a suitable sand/salt storage facility. At least 20% of towns not required to construct sand/salt storage facilities will implement BMPs for the operation and management of sand/salt storage areas.

#### **c. Actions**

- MDOT and DEP will develop a plan to deliver services to help towns.
- MDOT's Local Roads Center, through its newsletter and workshops, will inform towns officials about the values (long term cost avoidance and protection of local water resources) of minimizing erosion and sedimentation from town roads and associated drainage features;
- DEP, through workshops and staff consultations, will help municipalities understand how to comply with the ESC law while maintaining road ditches and other road drainage features;
- DEP and MDOT will jointly develop a program to invite State and municipal road crew personnel to become certified in erosion and sediment control;

- DEP will finalize the project priority rankings for all sand/salt piles in the State by October 1, 2000. In 2000, DEP will also develop and adopt rules regarding the siting, operation and management of sand/salt storage areas. DEP will continue the process of requiring registration of sand/salt storage areas statewide. DEP and MDOT will continue to provide outreach and education to municipalities and counties about sand/salt storage practices.

## **5. Agriculture – BMP Usage**

**a. Long Term Goal:** By 2015, an assessment survey of the usage of site-specific agricultural BMPs as part of farming activities will indicate 90% usage rate of BMPs<sup>5</sup>. By 2015, all documented instances of degradation of ground or surface waters from agricultural practices are addressed so as to meet water quality standards.

**b. 10 Year Goal:** By 2010, achieve a 70% usage rate of agricultural BMPs.

**c. 5 Year Goal:** By 2005, achieve a 50% usage rate of agricultural BMPs and use an assessment survey to re-evaluate goals for 2010 and 2015. Continue use of the agricultural complaint response program to prompt usage of site-specific agricultural BMPs. DAFRR will increase agricultural compliance assistance services to focus on abating agricultural nonpoint sources in watersheds of water bodies that are non-attainment or threatened due, in part, to agricultural sources.

### **d. Actions**

- DAFRR will continue implementing the agricultural complaint response program (on-going);
- By 2001, DAFRR, in consultation with DEP, will revise and promote “BMPs for Maine Agriculture” targeting farmers as the customer;
- In 2000, DAFRR will initiate an effort through legislation changes to strengthen enforcement capability of the “Right to Farm” law;
- On January 1, 2001, DAFRR will report to the Legislature, as required under the Act Regarding Nutrient Management<sup>6</sup>, on the impact of agriculture on nonpoint source pollution.
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<sup>5</sup>DAFRR is responsible to prompt usage of BMPs in all agricultural operations ranging from small hobby farms to large commercial farms. BMP usage goals are set at a 50% , 70%, 90% progression based on best professional judgement of BMP usage on all agricultural operations. BMP usage data is limited to 2 commercial farming sectors. In 1997, BMP usage survey assessments conducted on the potato and dairy commercial sectors reported BMP usage rates range of about 50% to 99% depending on the specific practices.

<sup>6</sup>38 M.R.S.A. §417-A, sub-§ 10

The report must include: “an evaluation of progress made by farmers in implementing BMPs to eliminate access by livestock to streams or lakes for drinking water; an evaluation of practices to reduce soil erosion from cropland; and an evaluation BMPs to reduce runoff of nutrients from farmland”;

- DAFRR will determine the number of farms using BMPs including nutrient management planning;
- On a ongoing basis, DEP will inform DAFRR about any waters that are non-attainment or threatened due, in part, to agricultural sources so that DAFRR can take action to abate agricultural sources;
- DAFRR will target agricultural compliance assistance to help restore or protect water quality; and
- DAFRR will target agricultural compliance assistance to coincide with active projects that involve abatement of agricultural sources to protect or restore waters, including , but not limited to: Atlantic Salmon Conservation Plan (seven river watersheds); Meduxnekeag River; and Cobbossee Lake.

## **6. Agriculture – Implementation of Statewide Nutrient Management Law**

**a. Long Term Goal:** By 2015, all “farms requiring a nutrient management plan<sup>77</sup> will use practices described in a site-specific nutrient management plan for their farm to manage nutrients.

**b. 5 Year Goal:** By 2005, all “farms requiring a nutrient management plan” will be on schedule with the applicable compliance dates as specified in 7 M.R.S.A. § 4204; and all livestock operations subject to permit requirements will conduct operations in accordance with a Maine Livestock Operations Permit.

### **c. Actions**

- By 2000, DAFRR will develop and implement the State's statutorily established Nutrient Management Program as follows:

All , existing farms requiring livestock operation permits will obtain them, and an on-going livestock operations permitting process will be in place;

DAFRR will establish and operate the Nutrient Management Review Board;

DAFRR will develop a program to certify individuals to write and certify nutrient management plans;

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<sup>77</sup> M.S.R.A. § 4204

- Beginning July 1999, DAFRR will secure funding from the State Revolving Loan Fund together with cost share funding to assist farmers in building and retrofitting manure storage areas;
- DAFRR will track the number of farms where nutrient management plans are developed and implemented (on-going);
- By 2000, DAFRR will hire two staff to implement nutrient management program; and
- DAFRR will maintain a list of known animal feeding operations, number of animal units and location (on-going).

## 7. Marinas and Boating

**a. Long Term Goal:** By 2015, all marinas and boatyards will comply with any applicable state regulatory requirements and use BMPs described in *BMPs for Marinas and Boatyards* (DEP, March 1999).

**b. 5 Year Goal.** By 2005, discharges from marinas and boats will be reduced to help meet the goal of opening an additional 15 square miles of shellfish habitat to harvesting.

### c. Actions

- DEP will administer grants to increase the availability of boat wastewater pump out facilities. By 2001, at least 10 new pump-out stations will have been installed. An additional 10 pump-out stations will be installed annually through 2005.
- In 2001, DEP, with help of a stakeholder group, will develop a general permit for marinas and boatyards to be issued under the State waste discharge law.
- In 2002, DEP will establish an outreach campaign to inform commercial and recreational boaters so they understand and use BMPs.

## 8. Forestry<sup>8</sup>

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<sup>8</sup> Currently there are different State standards applicable to timber harvesting in municipalities and the unorganized territory. In January 1999, in consultation with DEP and LURC, the Maine Forest Service produced a report to the Maine Legislature that proposes establishment of statewide timber harvesting

**a. Long Term Goal:** Maintain or, where necessary, restore the chemical, physical and biological integrity of aquatic ecosystems in forested areas. By 2015, nonpoint source impacts to water quality from silvicultural activities will be eliminated through effective use of BMPs on >75% of timber harvest sites.

**b. 5 Year Goal:** By 2005, develop specific forestry benchmarks (goals) and assessment methods for the following five indicators of water quality (as identified in the 1999 State of the Forest Report, which discussed forest water quality issues (see Attachment 1)):

Percent of water bodies in which aquatic biota are as naturally occurs;

Percent of harvested acres on which BMPs are utilized effectively (benchmark set at 75% by 2005)

Percent of water bodies with significant variation from the ranges of historic variability in water physical and chemical parameters;

Percent of water bodies (stream kilometers) with adequate levels of coarse woody debris;

Percent of water bodies (stream kilometers) where stream flow and timing have significantly deviated from the historic range of variability.

Additionally, subject the five indicators to technical review, and enhance understanding of timber harvest impacts to wetlands, vernal pools, and headwater streams.

### **c. Actions**

- By 2001, Revise the BMP guidelines and produce a new Forestry BMP manual
- Beginning in 2001, Monitor BMP usage on an annual, statewide basis.
- Enhance MFS outreach/training, monitoring, and enforcement regarding water quality, in collaboration with other agencies (for additional detail, see pgs. 33-35)

For more specific short term goals and forestry related NPS actions, see Attachment 1, excerpted from *The State of the Forest and Recommendations for Forest Sustainability Standards* (Maine DOC, June 17, 1999) (a report to the Maine Legislature by the DOC).

## **Key Element 2. The State strengthens its working partnerships and linkages to appropriate State, interstate, Tribal, regional, and local entities (including conservation districts), private sector groups, citizens groups, and Federal agencies.**

### **State level partnership and coordination**

As noted above, under the State's Nonpoint Source Pollution Program (38 M.R.S.A. §410-I), the following State agencies share responsibility for coordinating and implementing NPS programs: the Maine Departments of Agriculture, Food and Rural Resources (DAFRR); Conservation, Maine Forest Service (DOC); Transportation (MDOT); Economic and Community

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standards regarding erosion control and water quality BMPs that apply uniformly to both municipalities and unorganized territory. Legislative consideration of this proposal is expected in 2000.

Development (DECD); Human Services (Division of Health Engineering) (DHE); Marine Resources (DMR), and the State Planning Office (SPO). The lead State NPS agencies have and continue to improve numerous formal and informal working arrangements with other State and federal agencies, the Maine Legislature, municipalities, non-governmental organizations, and business sector associations that address abatement of nonpoint sources of water pollution.

Formal partnerships include those required under statute, memoranda of understanding, and official committees and work groups. DEP has entered into Memoranda of Understanding (MOU) that establish clear responsibilities for NPS control actions. The March 26, 1998 MOU with the MDOT and the Maine Turnpike Authority (MTA) provides that all linear transportation projects shall comply with requirements for an erosion and sedimentation control plan and storm water management plan as set out in the MDOT BMP manual as revised in 1997 and that long term sedimentation control shall be maintained as required in the MDOT BMP manual. The MOU provides a level of protection consistent with storm water standards established by DEP rules, Chapter 500. The March 1, 1999 MOU with DOC, Maine Forest Service formalizes a joint working relationship to achieve improved compliance with DEP's regulations related to logging and other forestry related activities. The MOU covers preventative training and counseling, remediation planning and execution, and informal and formal law enforcement relating to potential and actual violations of the Natural Resources Protection Act, the Mandatory Shoreland Zoning Act, and the Protection and Improvement of Waters Act.

The following are the primary permanent coordinating or partnership arrangements that the State uses to advance its NPS pollution control initiatives:

- Maine Land & Water Resources Council (L&WRC) serves as the State's decision-making body for natural resource issues of interagency scope. Membership consists of the Commissioners of the State's seven natural resources agencies.<sup>9</sup> The SPO director chairs the Council, which among numerous other duties coordinates watershed management activities and establishes priorities for the purpose of directing resources for watershed management.
- Maine Watershed Management Committee. This Committee, operating under the aegis of the L&WRC, provides advice and fosters information exchange and project collaboration on water resource protection and watershed management issues. The committee developed the list of NPS Priority Watersheds that was approved by the L&WRC. Nine State agencies, four federal agencies, and five non-governmental organizations are members, and DEP and SPO cochair.
- Nonpoint Source Training and Resource Center Advisory Committee. This 16 member advisory committee with governmental and non-governmental organization (NGO) membership advises DEP on the Center's training programs which target professionals involved with land use activities that are significant important nonpoint sources.

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<sup>9</sup>See footnote 1, above.

- State Conservation Districts Advisory Council. This council focuses on soil and water conservation issues. Membership includes all 16 State Soil and Water Conservation Districts. DAFRR chairs the Council.
- Forestry Advisory Team. FORAT advises the Maine Forest Service and DEP on developing and implementing actions to prevent water pollution caused by silvicultural management activities. Membership includes trade organizations, environmental groups, the University of Maine and governmental agencies.
- Council on Environmental Monitoring and Evaluation. Formed in 1997 by the Governor to identify environmental data gaps, the Council promotes the value of volunteer monitoring and facilitates transfer of information among organizations. Members include public and private environmental organizations and the business community.
- NRCS State Technical Committee. This stakeholder group provides advice to the NRCS on implementation of United States Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) technical and financial assistance for natural resource conservation programs.
- Maine Volunteer Lake Monitoring Program. This nonprofit organization is committed to collection of lake water quality information and dissemination of information on how to protect lake water quality. It is one of the largest and oldest citizen-based environmental monitoring programs in the country. DEP serves on the Board of Directors.

In the 1990's, DEP has worked closely with the Maine Legislature as it debated and enacted numerous laws to improve the State's NPS program. In 1997, the Maine Legislature enacted the Storm Water Management law to establish storm water quantity and quality standards for construction activities creating new impervious areas. In 1997, DEP hosted the "NPS Water Pollution Forum", bringing together representatives of all major sectors and stakeholder organizations as well as a follow-up meeting to help DEP report to the Legislature on "measures that would to reduce the contribution of NPS pollution to lakes, streams and coastal waters from existing sources." The January 30, 1998 report prompted expanded jurisdiction in the Erosion and Sedimentation Control Law and several more agency actions to improve NPS programs.

### **State-local partnerships and coordination**

Success of the State's NPS Program depends in part on maintaining effective relationships with municipalities and other locally-based partners. Informed local governments help their residents comply with State and local land use laws. In Maine, local governments regulate a large portion of land use development or maintenance activities. State law requires municipalities to

employ certified Code Enforcement Officers (CEOs). SPO provides regular training (including NPS related issues and laws) so that municipal CEOs maintain their professional certification. DEP also provides technical assistance to municipalities, all of which are required to enact and enforce ordinances that meet mandatory minimum standards under the State's Shoreland Zoning Act. Similarly, State law requires municipalities to provide Licensed Plumbing Inspectors (LPs) that are responsible for local implementation of the State's Subsurface Waste Disposal Rules, concerning siting and operation of on-site waste disposal systems (septic systems).

DEP and other State, regional, community and federal partners are conducting a Nonpoint Education for Municipal Officials pilot project in two towns within the Casco Bay Watershed. DEP has provided technical and financial assistance to assist the University of Maine Cooperative Extension Service (UMCE) in implementing a Watershed Stewards Program. The Program seeks to jump-start watershed stewardship in NPS priority lake watersheds. SPO, in partnership with UMCE and the Maine Department of Marine Resources (DMR), oversees a network of coastal citizen monitoring groups. These Shore Stewards groups, a key element of the Maine Coastal Program, are expanding their role beyond monitoring to active involvement in management of NPS pollution.

Maine is reaching out to targeted community and industrial sectors to help people comply with land use laws by use of BMPs and to encourage voluntary use of BMPs. Formed in 1997, the Maine NPS Training and Resource Center delivers technical information to professionals engaged in activities that may be significant nonpoint sources. The NPS Training Center also holds workshops for many private and municipal audiences including camp road owners, town officials and public road crews. General contractors, engineers, the forest industry, septic system installers, marina and boat yard owners and real estate appraisers are among the business and industry groups targeted for assistance. The business sector has participated in many work groups that address specific NPS related issues or 319 funded projects, such as: Storm Water Rules Work Group; Septic Systems Inspection Work Group; Manure Management Subcommittee; and the Concentrated Animal Feeding Operation Work Group. These groups have provided extensive opportunities for stakeholder or partner participation. The new voluntary contractor certification program and septic system installer certification programs provide effective incentives for participation.

DEP has developed solid partnerships with the USDA-NRCS, the Maine Association of Conservation Districts, and the County Soil and Water Conservation Districts. Since the 1950s Districts have established an effective system for working with landowners to implement soil

and water conservation practices. Most of the Districts have conducted NPS implementation or assessment projects with financial assistance from the State NPS Grants Program. Conservation Districts often conduct watershed and BMP demonstration projects that are aimed at encouraging use of BMPs and that feature a wide range of activities, including technical assistance, education and outreach, BMP installation and demonstration workshops to targeted audiences. The Conservation Districts are primary providers of NPS related technical training programs sponsored by DEP, DAFRR, and the Maine Forest Service. The State is increasingly recognizing the value of Districts' locally focused approach in achieving land and water quality protection

goals. In 1998, the Legislature appropriated funding to prevent or reduce NPS pollution in lake watersheds, and DEP used resulting funding to support two new Conservation District positions to work on lake protection.

Maine's many watershed-based partnership organizations working to protect water resources are among the strongest and most promising features of Maine's approach to NPS issues. These groups include but are not limited to: the Casco Bay Watershed Estuary Program, Saco River Corridor Commission, Cobbossee Watershed District, Lakes Environmental Association, Meduxnekeag River Coalition; Penobscot Riverkeepers, Androscoggin River Watershed Council, Atlantic Salmon River Councils, Maine Water Utilities Association and well over 100 lake, river or coastal waters associations.

### **State-Tribal partnerships and coordination**

DEP is working with the Houlton Band of Maliseets on 319 projects to control nonpoint source pollution from agricultural runoff in the Meduxnekeag watershed. DEP and EPA are working with the Penobscot Indian Nation to develop a 319 project to help the Tribe implement their anticipated nonpoint source management plan.

### **Key Element 3. The State uses a balanced approach that emphasizes both Statewide nonpoint source programs and on-the-ground management of individual watersheds where waters are impaired or threatened.**

State agencies provide services at a statewide level and utilize the watershed approach to prompt usage of on-the-ground BMPs to benefit water resources. DEP serves at the lead State water quality agency and works through formal and informal arrangements with the designated NPS State agencies and organizations to coordinate related environmental programs.

### **Statewide Approach**

The cooperative interagency structure and the varied relationships by which the State is carrying out its NPS Program are described under Key Element 2, above. DEP and other State and regional agencies deliver a wide array of regulatory (permitting, compliance assistance and enforcement), technical assistance, financial assistance, NPS technical transfer, and NPS pollution awareness outreach services that promote or require usage of appropriate BMPs to

prevent or minimize nonpoint sources of pollutants or water resources degradation on a statewide basis.

Statewide regulatory programs operate to implement several laws that control potential sources of NPS pollution, including but not limited to: the Stormwater Management Law; the Site Location of Development Law; Subdivision Laws; Erosion and Sedimentation Control law; the State Subsurface Wastewater Disposal Rules; the Natural Resources Protection Act; Land Use Regulation in Unorganized Territories; Pesticide Control laws; and the Mandatory Shoreline Zoning Law. Since the 1970s, the Maine's shoreland zoning law has required municipalities to

adopt ordinances to regulate land use controls for all land area within 250 feet of ponds and non-forested wetlands that are 10 acres or larger; rivers with 25 square miles of watershed; coastal wetlands and tidal waters; and all land areas within 75 feet of certain streams. In 1998 Maine adopted the Nutrient Management Act which requires nutrient management plans for operations having more than 50 animal units or bring in 100 or more tons of manure and permits for new or expanding livestock operations in excess of 300 animal units.

Non-regulatory tools are vital to the NPS Program. In addition to regulatory efforts (permitting, compliance assistance and enforcement), DEP, along with other State and regional agencies will continue to deliver a wide array of technical assistance, financial assistance, NPS technical transfer, and NPS pollution awareness outreach services that promote or require usage of appropriate BMPs.<sup>10</sup> During Phase 1 of the State's 15 year NPS strategy, the State will provide a broad range of education and outreach, including the following<sup>11</sup>:

- outreach to teachers through long-standing partnerships with the Maine Educational Association, Maine Science Teachers and other groups directed at prompting teachers to integrate environmental stewardship into curriculum for students in the 4 to 12 grade range;
- public service announcements, newspaper inserts, and advertising campaigns on special NPS issues
- participation in the annual children's' water festival;
- DEP speakers and exhibits at events;
- dissemination of the quarterly "NPS Times" newsletter, which is sent to over 400 professionals and other stakeholders, and other publications;
- distribution of the quarterly "Ripple Effect" newsletter to more than 850 constituents in the State's CZMA-designated coastal zone.

### **Watershed Approach**

From 1990 to 1997, DEP encouraged NPS abatement activity in threatened or impaired waters listed as "NPS Priority Waters." DEP continues to direct staff and financial resources to help municipalities and local organizations prompt on-the-ground implementation of BMPs to protect or improve NPS Priority Watersheds or other waters. Since 1992, DEP has used about 50% of 319 funds that the State has received for grants to sponsors of NPS Projects under a competitive NPS Grants Program. Under its NPS Grants Program, DEP invites proposals for

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<sup>10</sup>See Section VI. (Technical Assistance) of the Maine Coastal Nonpoint Source Control Program (July 1995) for additional description of State services devoted to NPS technical assistance.

<sup>11</sup> Most of these services are institutionalized by State law or federal funding conditions. The Storm water Law (1997), the Sediment & Erosion Control Law (1997), and the Nutrient Management Law (1998) are examples of recent upgrade of statewide regulatory programs to control nonpoint source pollution.

projects that focus on actions to prompt usage of BMPs at significant nonpoint source sites within a watershed to benefit water quality. In making selections for grant funding, DEP gives priority to projects that benefit waters located within designated NPS Priority Watersheds. Currently, DEP provides program staff serving as technical advisors to help sponsors conduct 90 active NPS projects. Watershed and BMP demonstration projects are typically conducted by resource specialists in Conservation Districts and feature a wide range of activities, including technical assistance, education and outreach, BMP installation and demonstration, and workshops to targeted audiences.

In 1997, the Maine Legislature authorized "a comprehensive watershed protection program." Under this program, the Maine Land & Water Resources Council (L&WRC) is charged with coordinating the activities of agencies involved in watershed management to:

- A. Develop and implement strategies designed to protect the State's surface waters from nonpoint source pollution;
- B. Conduct scientific research and water quality surveys to establish baseline information about the condition of the State's surface waters and the relative risk to surface waters from nonpoint sources of pollution;
- C. Implement regulatory and nonregulatory approaches to watershed protection, including public education and technical assistance;
- D. Coordinate activities with local governments, other state agencies, federal agencies and other organizations that are involved in activities aimed at controlling nonpoint source pollution; and
- E. Establish priorities for the purpose of directing resources to the management of water bodies based on an assessment of their value, the degree of threat or impairment to water quality and aquatic habitat due to nonpoint source pollution, the likelihood of meeting watershed management objectives and the degree of public support in the watershed for watershed management.

DEP and SPO formed the Maine Watershed Management Committee, discussed under Key Element 2, above, to implement this program. DEP and SPO worked with the committee to develop the "NPS Priority Watershed List" to help direct various local, state or federal resources

to restore or protect water bodies. In October 1998, the L&WRC approved the list. In 1998, DEP redesigned the NPS Grants Program to incorporate usage of new State bond funds (\$500,000 for 1999) for planning or implementing a "watershed management plan" that enable comprehensive local watershed management to protect or restore water resources. Under Maine's competitive grant application process, preference is given to projects designed to protect or restore waters that are on the NPS Priority Watershed List.

State and federal agency participants on the Maine Watershed Management Committee are increasingly targeting discretionary program resources to benefit waters within NPS Priority Watersheds. For example, since 1998 the Maine Department of Transportation operates a grant program to offer \$200,000 of federal highway funds for MDOT road projects that reduce sedimentation from roads within priority watersheds. The USDA NRCS adopted the NPS

Priority Watershed list as a key part of the selection criteria for usage of Environmental Quality Incentive Program funds to cost share with landowners on adoption of conservation measures to benefit water resources.

“Watershed restoration action strategies” called for in the Federal Clean Water Action Plan are being prepared to restore water bodies not attaining water quality standards or imminently threatened with non-attainment. On project basis, DEP will focus and direct funds to restoration of water bodies within "Category #1 watersheds", areas designated as highest priority in the State's Unified Watersheds Assessment.

**Key Element 4. The State program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future nonpoint source activities.**

#### **NPS Abatement**

Pursuant to Section 303(d) of the Clean Water Act (CWA), the State has generated a list identifying specific waters that are impaired or imminently threatened with impairment attributed to nonpoint sources (TMDL waters). The list identifies 109 specific waters that are impaired or threatened with impairment attributed to nonpoint sources (which represent 67% of the total TMDL waters). Of those nonpoint source-impaired waters, 67 (61%) are rivers and streams, 38 (35%) are lakes, and 5 (4%) are estuarine waters. TMDLs are scheduled for development over a 13 year period. (Refer to key element 5 and Part VII for more information on the State's approach to TMDL waters.

Maine's new comprehensive watershed protection program is directed, in part, to abate known water quality impairments. Under this program, DEP has overseen the multi-agency development of the NPS priority Watersheds list and all TMDL waters are included in that list.

On the ground NPS implementation projects, funded in part under Section 319(h) of the CWA, focus primarily on either restoring non-attainment waters or on protecting threatened waters. Generally, the combination of statewide services and specific NPS projects have prompted a considerable increase in usage of BMPs in watersheds throughout the State. Generally, national NPS research has demonstrated water bodies do respond only gradually to widespread adoption of BMPs. Seasonal and annual weather variations, pollutant transport mechanisms, and monitoring cost and complexities severely limit detection of water quality improvements over a short time frame. Part VI provides some examples of water quality improvement due to NPS implementation activities.

#### **NPS Prevention**

Statewide regulatory programs administered by DEP directly impose a more stringent level of NPS controls on waters that are most vulnerable to NPS pollution. The 1989 NPS Management Plan and the State's 1995 Coastal Nonpoint Source Program documentation, discussed in Part I, above, identify all the significant NPS categories and specific laws, programs and agencies used to abate existing or prevent future NPS pollution through regulatory means. Several additional State laws and rules enacted subsequent to preparation of these documents provide additional pollution prevention and abatement tools. The State's recently enacted Storm Water Management Act and its implementing rules identify specific watersheds as "Waters at Risk From Development." The quality of waters on this list are at significant risk of degradation due to NPS pollution from new development. New development in these watersheds is subject to requirements regarding use of BMPs to prevent storm water pollution. Rules adopted by the DAFRR under the Nutrient Management Act require Maine farms to adopt nutrient management plan and, in some cases, to obtain a livestock operation permit.

About 50% of the State's land falls within a lake watershed. Lakes are particularly susceptible to a slow decline in water quality due to subtle increases in phosphorus inputs caused by cumulative development in watersheds. In 1985, DEP developed a lake watershed phosphorus allocation methodology to estimate and allocate phosphorus export from new developments within lake watersheds. The methodology is mandatory for projects under jurisdiction of the State's Site Location of Development Act and more recent Storm Water Management Act. Several towns have also adopted the methodology in municipal ordinances. DEP and the SPO are continuing to help towns recognize its value and incorporate it into local ordinances.

Increasing public recognition of the economic value of lakes is also building increasing support for use of BMPs and other actions to address NPS issues. DEP and the University of Maine have published two applied research reports which document the economic value of lakes to the statewide and local economy and the direct relationship between lake water clarity and shore property valuation. In 1998, the Maine Legislature directed DEP to increase actions to protect lakes from NPS pollution and provided funds to add four DEP positions and two Soil and Water Conservation District positions at county offices. These positions have all be filled and have revitalized DEP's lakes protection program.

The Shoreland Zoning Law is used to protect riparian areas adjacent to water bodies. SPO provides technical and financial assistance to towns and regional planning councils to help communities manage growth, adopt local comprehension plans and associated ordinances. Assessment of the value and water quality status and protection of local water resources is built into the local planning process.

**Key Element 5. The State program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.**

The State's process to identify and address waters impaired or threatened by NPS involves: water quality status assessment; reporting; priority setting; watershed surveys for NPS problems; preparation and implementation of a Watershed Management Plan; and NPS Implementation projects.

### **Identifying Impaired and Threatened Waters**

The biennial State Water Quality Assessment Report (305b) reports a summary of the assessment information including description of the water quality attainment status (attaining, attaining but threatened, or not attaining) and the suspected or known cause (point or nonpoint source) of the threat or non attainment. The 303(d) TMDL listed waters are a subset of the non attainment listed waters. Assessment of water bodies' status is based on data accumulated by DEP's permanent monitoring network, dioxin monitoring program, toxics monitoring program, various classification attainment studies, special studies like REMAP and the NADP, the lakes volunteer monitoring program, several watershed organizations, two tribal nations, the Shellfish Sanitation Program, and the Shore Stewards Program.

### **Streams**

DEP has developed a three level methodology to help identify streams that may be impaired due to NPS pollution sources. The Watershed Pollution Potential Index is used as "level 1 screening" to determine what streams should be observed in the field for NPS impacts. The Index estimates the relative potential of watersheds to export urban and transportation based storm water pollutants to their receiving waters. DEP derived the Index from extractions of watershed specific information from several GIS data layers including transportation, population, soils, slope, and urban land use. DEP has applied the Index to the southwestern portion of Maine only, due to limitations within the land cover data layer. The Index generally does a good job of identifying watersheds with high potential to export storm water pollutants from roads and developed areas and, at least in smaller watersheds (5 to 10 sq. mi. or less), correlates well with

stream quality as measured by biomonitoring of the macro invertebrates. "Level 2", a rapid bioassessment field screening to identify streams which exhibit probable use impairment impacts, involves a biologist recording a series of observations of stream physical and biological conditions in the field. If the biologist determines that impairment is probable, then DEP will conduct a more detailed assessment, "Level 3, characterization of impairment" to determine classification attainment status.

### **Lakes**

DEP uses data from the Lakes Volunteer Monitoring Program and DEP lakes baseline monitoring, and any pertinent special studies to assess lakes water quality status to assess lakes' water quality status. DEP has assessed about 97% of the State's lake acreage. DEP has

conducted trophic state trend analyses, for which a minimum of 10 years of adequate data is needed, for about 50% of the State's lakes acreage.

### **Coastal Waters**

DEP's Marine Environmental Monitoring Program (MEMP) uses a three-way approach that addresses toxic contamination, nutrient enrichment, and the health of the biological community. Levels of toxic contamination have been monitored in sediments, mussels, lobsters and cormorants coast wide. A two-year study assessed the potential for nutrient enrichment by monitoring dissolved oxygen and nutrients coast wide. Benthic community assessment is being used for Natural Resources Protection Act permitting, salmon pen aquaculture monitoring and to provide a general assessment of the health of the biological community in Maine's coastal waters. The MEMP uses these indicators to determine the status of coastal waters and does not have a separate NPS program.

DMR's routine monitoring of fecal coliform bacteria, sanitary surveys of coastal development and studies of watershed hydrology help identify threatened and impaired coastal waters. These efforts are augmented by the State's coastal monitoring groups, which collect data on temperature, salinity, dissolved oxygen, and fecal coliform bacteria. This information is shared with State agencies and used locally to identify water quality problems in need of further investigation.

Future activities include the continuation of monitoring for toxic contaminants in mussels, examining potential problem areas of nutrient enrichment, strengthening the use biological assessment and increasing the MEMP's knowledge of coastal processes so that natural variability can be separated from human disturbance.

### **Process to Address Impaired or Threatened Waters.**

Maine's process to address waters identified as not attaining water quality standards or threatened by NPS involves: priority setting; water quality assessment; NPS watershed surveys; preparation of a watershed management plan or a project work plan; and implementing actions called for in a watershed management plan or work plan. The "Maine Section 303(d) Waters – 1998" lists water bodies that are not attaining water quality standards and a 13 year schedule for accomplishing preparation of water pollutant load abatement plans (TMDLs). Refer to Part VIII for more information on the State's approach to TMDL waters.

From 1989 to 1997, priorities for NPS abatement activity in threatened or impaired waters were set in the NPS Priority Waters list. In 1997, the Comprehensive Watershed Protection Program statute, discussed above, caused DEP to develop a revised NPS Priority Watersheds list of impaired and threatened lakes, rivers and streams and coastal waters to help direct various local, state or federal resources to apply watershed management techniques to restore or protect water bodies. Public participation on the listing was by consultation and direct mail to stakeholders, and public notice of opportunity for comment. The Maine Watershed Management

Committee reviewed the list, which in October 1998 was approved by the L&WRC. The following criteria were used in the prioritization process: 1) relative level of the NPS threat or impairment; 2) relative "value" of the resource; and 3) financial and technical feasibility for successful NPS abatement.

The March 1998 Federal Clean Water Action Plan provides states with additional 319(h) funds and directs federal agencies to work together with States to focus actions to restore waters that are imminently threatened or impaired. In 1998, Maine prepared the "Unified Watershed Assessment" required by EPA to help identify watersheds with the most critical water quality problems. EPA is directing states to use these new additional 319 funds to conduct projects to achieve demonstrable water quality improvements or restorations of waters as rapidly as possible. Maine's Restoration Action Strategy will focus these additional resources on NPS Projects in sub watersheds to achieve usage of the BMPs that are needed to reduce NPS pollutant loads sufficiently to restore water quality in non-attainment (303(d) or imminently threatened waters.

NPS Grants provide financial assistance to help conduct projects to reduce or prevent the pollutants originating at nonpoint sources from entering water resources so that beneficial uses of the water resources are maintained or restored. Each year since 1992, DEP has funded from six to 20 NPS projects. Project duration is one to three years. Maine public entities such as State agencies, SWCDs, RPCs, watershed districts, municipalities and nonprofit organizations are eligible recipients. DEP has established an annual competitive RFP process for grant distribution. Preference for project selection is given to projects that will benefit NPS Priority watersheds. The RFP invites four types of NPS grant projects: NPS watershed survey project; NPS implementation project; project to develop a watershed management plan (WMP); or project to implement a WMP.

The State has found that NPS Watershed Surveys are an effective method used to identify and initiate action to correct NPS problems and foster watershed stewardship. Since 1991 local environmental groups have conducted surveys in over 70 watersheds. The purpose of a NPS

Watershed Survey is to assess a watershed for existing nonpoint source pollution problems. To help raise awareness of NPS pollution, NPS Watershed Surveys rely on trained volunteers from the community to identify the sources of NPS pollution. Professionals evaluate the sites identified by the volunteers, prioritize them, and recommend general solutions. An NPS Watershed Survey Project is designed to produce an NPS Watershed Survey report describing numerous sites within a watershed that are sources of NPS pollution, with a general recommendation for fixing each site; and to considerably increase citizen awareness and action to reduce nonpoint sources of water pollution to their local water resources. A Survey often prompts landowners to take actions to reduce soil erosion and contamination of storm water runoff. Survey results are also used to help attract local support for conducting a NPS implementation project or watershed management project. Recommended methods for conducting a NPS Watershed Survey are detailed in *A Citizens Guide to Lake NPS Watershed Surveys* (April 1997) and *A Citizens Guide to Coastal Watershed Surveys* (May 1996). DEP plans to develop a similar guide for small streams.

**Key Element 6. The State reviews, upgrades, and implements all program components required by section 319(b) of the Clean Water Act, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The State programs include:**

- o A mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and**
- o A mix of regulatory, non-regulatory, financial and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.**

The State continues to fulfill the requirements of section 319(b) of the CWA. Water quality-based programs include stream surveys conducted on a rotating watershed basis, and lake monitoring (both state targeted and volunteer). Additional water quality-based program activities are described under key elements 3, 4 and 5.

Technology based programs include encouraging the use of BMPs. The State has established nine major NPS categories and associated BMP guidelines and regulatory programs and a process to upgrade the BMPs or regulatory programs as needed to prompt voluntary use of BMPs or use of BMPs to satisfy State or local land use laws or ordinances. The State has developed "Best Management Practice Guidelines"<sup>12</sup> to provide BMP users with practical, cost-effective siting, design, construction, or operational procedures determined by an appropriate agency to prevent or reduce pollution generated by nonpoint sources.

The State has developed the following assortment of BMP guidance manuals to provide information on methods to prevent or reduce pollution generated by nonpoint sources.

- *"Maine Erosion & Sediment Control Handbook for Construction: Best Management Practices"*, Cumberland County Soil and Water Conservation District and DEP, March, 1991.
- *"Strategy for Managing Nonpoint Source Pollution from Agricultural Sources and Best Management System Guidelines,"* Developed by: NPS Agricultural Task Force, October, 1991.
- *"Best Management Practices for Erosion and Sediment Control"*, Maine Department of Transportation (MDOT), May, 1992; revised September, 1997.
- *"Erosion and Sediment Control Handbook for Timber Harvesting Operations - Best Management Practices,"* Maine Forest Service, June, 1991.

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<sup>12</sup>Best management practices are defined at 38 M.R.S.A. § 410-H.

- *"Phosphorus Control in Lake Watersheds: A Technical Guide to Evaluating New Development"*, DEP, issued 1989, revised 1992.
- *"Maine Best Management Practices for Storm Water Quality and Quantity Control"*, DEP, November, 1995.
- *"BMPs for Marinas and Boatyards: Controlling Nonpoint Pollution in Maine, an Environmental Guide for Marinas & Boatyards"*, DEP/ SPO, March, 1999.
- *Camp Road Maintenance Manual: A Guide for Landowners*, Kennebec County Soil & Water District and DEP, June, 1999.

Maine's lead NPS agencies have responsibilities to conduct programs to (1) implement a variety of enforceable authorities (State laws, rules and municipal ordinances, governing specific land use activities or locations that require people to comply with certain performance standards to protect water quality) and (2) encourage the voluntary usage of BMPs.

Under regulatory programs specific BMPs are required in some instances; in others, the person can choose the BMPs needed to comply with the performance standard. The enforceable authorities relevant to NPS program are detailed in the State's 1995 Coastal NPS Control Program document filed to substantiate that the State has authority to prompt implementation of the 56 CZARA management measures. In addition to statutes and rules specific to NPS source activities, the State relies on "back up authorities", more general water quality protection laws, as

supplementary measures.<sup>13</sup> Municipal governments play a key regulatory role in several areas, including, but not limited to, implementing subdivision laws, administering shoreland zoning and regulating on-site waste disposal systems.

Non-regulatory programs to promote voluntary usage of BMPs are delivered on both a statewide basis and in specific areas through the States watershed management approach. Technical assistance is provided through various training and educational programs administered by DEP, Maine Forest Service, Department of Agriculture, Department of Transportation, Department of Economic and Community Development, Soil and Water Conservation Districts, the University of Maine Cooperative Extension System and other organizations.

The State also provides financial assistance to promote widespread implementation of BMPs and progress in addressing management measures. The State's primary programs for NPS financial assistance are:

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<sup>13</sup> As noted in Part One, above, in February 1998 Maine received a determination that Maine's NPS program meets the CZARA requirements subject to conditions of approval, and intends to file with NOAA and EPA a letter from its Department of Attorney General explaining the legal basis of partial reliance on back up authorities. Maine continues to work to satisfy the conditions and implement the program.

- Small Community Grants. The Small Community Program provides grants to help pay the cost of replacing septic systems to eliminate discharges of untreated wastewater to water bodies. In 1998, DEP awarded a total of \$500,000 to clean up coastal shell fishing areas and to improve water quality in 62 coastal and other communities. The source of grant funds is a State bond.
- NPS Grants. As noted above, DEP provides NPS Grants for: NPS Watershed Surveys; NPS Implementation; development of a "watershed management plan" (WMP); or project to implementation of a "WMP". The sources of grant funds are a State bond and CWA Sections 319(h) and 604(b).
- Pump-out grant program. This program provides grants to help pay for the installation and maintenance of holding tank pump-out stations at marinas and similar locations in coastal areas. The source of grant funds is the Clean Vessel Act.
- State Revolving Loan Fund. In 1999-2000, the State will establish a loan program to offer low interest loans for installation of manure storage facilities installed to comply with the State's Nutrient Management law and related DAFRR rules.

**Key Element 7. The State identifies Federal lands and activities which are not managed consistently with State nonpoint source program objectives. Where appropriate, the State seeks EPA assistance to help resolve issues.**

There are about 318 square miles of federal land within Maine's 33,265 square miles of area. Most of these federal lands are within national forest, national park, wildlife refuge or military facilities. The federal consistency process under Section 307 of the Coastal Zone Management Act provides a tool by which the State can ensure that direct federal activities, as well as federally licensed, permitted and funded activities, are consistent with the "enforceable policies" of the Maine Coastal Program. Under the networked Maine Coastal Program, these enforceable policies include the legal authorities that the State enforces to abate and prevent NPS pollution. Section 401 of the CWA provides additional related authority regarding federally licensed or permitted activities that may result in a discharge of pollutants. To ensure consistency with the Nonpoint Source Program, Maine will continue to review all Federal Projects that involve an alteration to a protected natural resource as defined in Maine's Natural Resource Protection Act. Such activities include, but are not limited to, dredging and filling of wetlands.

**Key Element 8. The State manages and implements its nonpoint source program efficiently and effectively, including necessary financial management.**

The State and its partners have been effective at leveraging resources for NPS control from other federal, State and local government agencies and non profits. The NPS Grants Program has a successful eight year track record of planning, awarding and implementing NPS projects effectively and efficiently. DEP is currently administering 90 active NPS projects

sponsored by pass through contract with agencies or non-profits. The duration of these projects ranges from one to four years. NPS project work plans, budgets, and award contracts are clear, concise, and detailed. Maine requires a minimum of 40% non-federal match on 319 project grants. Federal 319 program grant funds received on an annual basis are tracked effectively by grant award year, project and sub award levels. Periodic progress reports and final reports are prepared in accordance with a standard report format. Budget status, including non-federal match accumulation, is included in the progress and final reports. As of January 1999, DEP has completed all projects and filed the Final Financial Status Reports for all the 319 grant awards through 1994. The State financial management practices are consistent with standard accounting practices and federal financial assistance requirements.

**Key Element 9. The State periodically reviews and evaluates its nonpoint source management program using environmental and functional measures of success, and revises its nonpoint source assessment and its management program at least every five years.**

In 2004, DEP will evaluate the effectiveness of the NPS program to date and develop a second 5-year plan identifying on-going actions, and any additional implementation actions for 2005 – 2009. NPS program effectiveness is assessed at three scales: (a) Statewide effectiveness measured by the systems in effect to monitor water quality conditions (i.e. classification assessment network, specials studies, lakes volunteer monitoring program) and assessment of

BMPs usage; (b) any NPS project specific assessments; and (c) typical activity tracking at a program or project level. In addition, the State intends to assess progress in implementing its 15 year NPS strategy by gauging BMP usage rates. *See Part Four, Approach and Schedule for Tracking Progress and Making Mid-Course Corrections, below.*

## **PART THREE: 15 YEAR STRATEGY AND 5 YEAR IMPLEMENTATION PLANS**

### **I. Introduction**

#### **A. Overview**

The organization of this strategy reflects the State's integration of CWA Section 319 and CZARA Section 6217 planning actions. The initial five year implementation plan (2000-2004) nested within the 15 year strategy outlined below describes "actions" to be conducted. The State envisions that, in addition to implementation of existing programs and new nonpoint source initiatives, subsequent five years plans will also reflect mid-course corrections and other Program improvement needs identified by monitoring, through interagency consultation, including consultation with NOAA and EPA, and public input following implementation of the initial five year plan.

The initial five year plan is intended to achieve meaningful progress in addressing the NPS Program areas in need of improvement, outlined in section B, below, as well as continuing progress in meeting the long and short term goals identified under Key Element 1, in Part II, above, and ensuring implementation of the 6217 management measures.

#### **B. NPS Program Areas in Need of Improvement**

The State has made significant progress to date in addressing nonpoint source pollution problems. With this progress has come recognition of program areas that need improvement to ensure continuing progress in meeting program goals. The program plans that follow are designed in part to address the following needs, as appropriate:

- **Public recognition that erosion and sedimentation is a significant pollutant that threatens water resources is limited.** State statistical surveys of the general public about water pollution causes demonstrates that the over 85% of people in Maine do not understand that erosion and sedimentation is even a source of water pollution. Public support and recognition of need is vital to prompting people to use BMPs and to gain acceptance of costs and benefits of various private or business sector efforts, programs, policies, and municipal and State laws aimed at abatement of nonpoint water pollution sources. For example, private camp roads are a leading source of nonpoint source pollution to lakes in Maine. Funding lake surveys by local groups has been effective in increasing public recognition of the problem.
- **Maine's Soil and Water Conservation Districts do not have adequate base funding support from the State, county and local governments to meet the demands for soil and water conservation services.** We need to help people recognize the value of strong county Soil and Water Conservation Districts that have adequate resources to deliver education and technical

assistance services to directly to towns and landowners. SWCD can serve as the primary source of technical assistance to help towns and landowners adopt usage of BMPs to protect soil and water resources. SWCDs are uniquely qualified for this role due to the local presence at 16 field offices, long-standing success in gaining trust and cooperation with landowners and municipalities, and their long term partnership with the Natural Resources Conservation Service. Additional regionally based technical assistance capacity may be need to address the issues unique to coastal watersheds, where SWCDs have had comparatively less involvement.

- **The State needs to build support for the new Priority Watersheds Protection Program.**

The Priority Watershed Protection Grants Program (38 MRSA 2013, enacted 1997) sets a means of providing financial assistance for conducting locally-supported watershed management projects. These projects are intended to prompt widespread use of BMPs or other management measures effective in reducing or eliminating nonpoint sources of water pollution in Maine's surface waters. Projects under this program must either develop a watershed management plan (WMP), or implement an existing approved WMP. The statute outlines 8 mandatory elements that must be included: assessment of water quality; types of land and water uses; NPS severity; determination of suitable NPS controls; implementation strategies; landowner education about BMPs; plan evaluation; and self-sustaining financial support of WMPs. A bond passed by state referendum in 1998, authorizes use of \$500,000 for the Priority Watershed Protection Grants Program. DEP provided NPS Grants to 6 projects in 1998 and 1999 under these program funds. We need to gain support for continued State funding to build progress in locally-supported watershed management to achieve long term protection of water resources.

- **Data on the water quality status of Maine's streams is limited.** In order to identify and prioritize more effectively among competing needs, the State needs to build a data base of stream water quality information, in part as a tool to highlight information gaps. To date the State has focused principally on lake and river water quality concerns, and to a lesser extent on certain coastal water quality issues. The State needs to help forge local constituencies, and to develop better biological assessment tools to discern nutrient enrichment in fresh water streams. In 1999, and over the next five years, DEP intends to increase both pre- and post-monitoring on 319 restoration projects and to develop a local Stream Team program.

- **Further refinement of a well-coordinated, team approach to resolving NPS complaints and violations in the agriculture and forestry areas is needed.** Although DAFRR and the Maine Forest Service have lead responsibility in resolving problems in each of these categories, DEP is charged with initiating formal enforcement actions when cases are not resolved through other means. Legislation is pending to address the forestry aspect of this issue in part, through adoption of a uniform set of forest harvest standards to be enforced principally by the Maine Forest Service. DEP and DAFRR are discussing a MOU regarding DAFRR's role in the NPDES Program, for which the State is seeking EPA delegation.

- **The State needs to develop and put in practice improved, practical methods to assess or quantify progress at protecting water resources.** Accumulation of NPS pollutant load

reduction estimates and related information as an indicator of program success is among the potentially fruitful approaches that DEP should assess. A majority of State NPS program effort is directed at maintaining and protecting water resources that are attaining classification standards. Verifying achievement of at least stable water quality is one important measure of the efficacy of the State's program. However, DEP should determine if there are practical methods to accumulate NPS load reduction information as an indicator of progress in improving water quality.

- **Better information on the efficacy of BMPs is needed to support both regulatory and non-regulatory approaches.** Simply put, it's hard to make a compelling case for continue and expanded use of BMPs in the absence of information that use tangibly improves water quality. The State is beginning to address this concern by conducting studies of the pollutant removal effectiveness of certain BMPs and monitoring relevant studies by EPA or others.
- **The transport and fate of nonpoint pollutants in Maine's complex coastal environment is not well understood.** Under DEP's ranking criteria, coastal NPS remediation projects are generally less competitive for 319 grant funds due to limited assessment of coastal water quality. The State needs to fund additional research on circulation and pollution fate and transport in its small embayments.

## II. Overview of the 15 Year Strategy

The State's 15 year strategy is presented in the following three sequential five year program plans covering 2000-2004, 2005-2008, and 2009-2014. As noted above, the tables provided for Phase I (2000-2004) further detail the actions that the State intends to take to meet the goals articulated in Part Two, Key Element 1. Specific program actions for the subsequent two five year program plans will be determined through on-going planning and evaluation, as described Part Four, below. The State intends to implement core program activities, listed as "on-going" in the following tables, throughout the fifteen year period.

### A. Targeting

#### 1. Geographic targeting: priority watersheds.

During the initial 5 year planning period, the State intends to focus on NPS priority watersheds. Maine's watershed approach includes planning, watershed assessment, and implementation. *See* discussion under Part Two, Key Element 3, above. As part of on-going planning efforts, discussed in Part Four, below, the State intends to evaluate the needs for on-going work in identified priority watersheds and to assess the need for revision of watershed areas within which to focus resources. Notwithstanding this focus, the State will continue to implement on a statewide basis the regulatory and other programs that comprise the State NPS Program.

## **2. CZARA Management area**

As previously discussed with NOAA and EPA, the State's entire land area is the management area for the purposes of this 15 year strategy. Within this statewide management area, the State's Coastal NPS Program document proposed and EPA and NOAA approved exclusion of a number of management measures *for the unorganized area*.

The management area selected accurately reflects not only integration of the Coastal NPS Program within the larger State NPS program but also the networked nature of the Maine Coastal Program ("MCP"). Maine's "enforceable policies", primary tools and backup authorities for ensuring abatement and control of water pollution sources, are laws of statewide application administered principally by DEP. This approach, while promoting efficient use of available resources, ensures SPO oversight of program activities affecting the coast through its roles as lead agency for the MCP, federal consistency coordinator, and staff to the Land and Water Resources Council.

### **B. 15 Year Coastal NPS Program Goal.**

As an element of the State's NPS Program, the basic goal of Maine's Coastal NPS Program is to ensure implementation of applicable 6217 management measures by prompting State and local government, business, industry, and individuals to use BMPs to restore and maintain the chemical, physical, and biological integrity of the State's coastal waters.<sup>14</sup>

## **III. Five Year Program Plans**

### **A. Phase I (2000 - 2004)**

This section presents details regarding program actions in the form of tables identifying actions, timeline, lead agency, sources of funding, and explanatory notes. There is a separate table for each of the following NPS source categories: Agriculture, Forestry, Urban Sources (Urban Runoff, Construction Activities, Existing Development, On-site Disposal Systems, Pollution Prevention and Roads, Highways and Bridges); Marinas and Boatyards; Hydromodification; and Wetlands. Internally, action items are organized to show the 6217

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<sup>14</sup>See Part One, Key Element 1, above. Maine Coastal Nonpoint Source Control Program, SPO (1995), p. 2. This goal reflects the State's overall goal of the State's water quality programs. See 38 M.R.S.A. §464. This goal recognizes that abatement and control of non-point sources alone may not be adequate to ensure full achievement of the State's water quality standards including those concerning aquatic habitat. There are other contributions to existing water quality concerns, such point sources, atmospheric deposition, and contribution of nutrients from offshore sources, which need to be addressed through other federal, State, and programs. This strategy aims at addressing fully the contribution to adverse water quality conditions in Maine attributable to non-point sources of pollution.

management measure<sup>15</sup> to which they pertain. These action items are for the most part on-going State NPS-related program commitments with additional actions targeted to address specific program improvement needs or other issues. Refer to Attachment 2 for an explanation of the abbreviations in the tables.

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<sup>15</sup> The reference provided for each management measure is to *Guidance Specifying Management measures for Sources of Nonpoint Pollution in Coastal Waters*, EPA (January 1993).

**1. Agriculture**

MM ref #	Actions	Schedule	Lead Agency	Funding
Overall N/A	1. Prepare report on impact of ag. sources on NPS per PL 1997 c. 642, sec. 10	2001	DAFRR; DEP	GF; [319]
	2. Review and revise Right to Farm law to address sprawl, BMP use and other issues	2002	DAFRR	GF
	3. DEP, in conjunction with study noted in (1), identify waters adversely affected by agriculture sources through 305(b) process and DEP monitoring	2000- ON- GOING	DEP	[GF]
	4. Survey of rate of BMP usage	2004	DAFRR; DEP	[319]
Erosion and Sed. Control Ch.2,II.A.	1. Prompt ESC on new and existing farm operations based on soil & water conservation benefit to farm production; use agricultural complaint program under authorities cited in Me. Coastal NPS doc., A-24 [waste discharge law and right to farm law]	ON- GOING	DAFRR	GF
	2. Public education and outreach efforts in cooperation with Cooperative Ex. Service, NRCS, SWCDs and industry	ON- GOING	DAFRR	GF
CAFO (Lg.) Ch.2,II.B.1	1. Implement Nutrient Management Act - Livestock operations permit required for new and expanding operations > 300 a.u.	2000 - ON- GOING	DAFRR	GF
	2. Regulate new and existing AFOs under authorities cited in Me. Coastal NPS doc., A-25 (waste discharge law and right to farm law)	ON- GOING	DAFRR; DEP	GF
	3. Develop and implement MOA with DEP re: NPDES permitting	1999	DAFRR;D EP	GF
CAFO (Sm.) Ch.2,II.B.1	1. Implement Nutrient Management Act -	2000- ON- GOING	DAFRR	GF
	2. Regulate new and existing AFOs under authorities cited in Me.	ON-	DAFRR;	GF

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MM ref #	Actions	Schedule	Lead Agency	Funding
Nutrient Management Ch.2,II.C.	1. Implement Nutrient Management Act - Nutrient management plans required for operations that have 50 or more au, bring in 100 or more tons of manure, or are subject of verified complaint	ON-GOING	DAFRR	GF
	2. Develop manual to train persons to certify NM Plans	1999-2000	DAFRR	GF
	3. Certify persons to prepare NMPs	1999-2000	DAFRR	GF
	4. Establish low interest loan program to assist farmers in building nutrient storage facilities	2000 - ON-GOING	DAFRR	SRF
	5. Regulate new and existing farm operations under authorities cited in Me. Coastal NPS doc., A-27 [waste discharge law and right to farm law],	ON-GOING	DAFRR; DEP	GF
Pesticide Mgt. Ch.2,II.D.	1. Provide training and recertification and regulate new and existing uses of pesticides under authorities cited in Me. Coastal NPS doc., A-29 [BPC law and rules and right to farm law]	ON-GOING	DAFRR; BPC	GF
	2. Continue to implement integrated IPM/ICM program to assist ag. community	2001 - ON-GOING	DAFRR	GF
Grazing Management Ch.2,II.E.	1. Prompt use of management measures on new and existing grazing operations under authorities cited in Me. Coastal NPS doc., A-31 [waste discharge law and right to farm law] and Nutrient Management Act	ON-GOING	DAFRR; DEP	GF
Irrigation Water Mgt. N/A – excluded from CZARA requirements	DEP will develop and propose rules applicable to surface water withdrawal for irrigation or other uses to help ensure that water quality classification standards are maintained.	2001		

## 2. Forestry

MM ref #	Actions	Schedule	Lead Ag'y	Funding	Notes
Overall N/A	<ol style="list-style-type: none"> <li>1. Revise the State Forestry BMP manual</li> <li>2. Continue MFS technical assistance to landowners, loggers, and foresters regarding BMPs/water quality. Additional related training for MFS personnel also planned.</li> <li>3. Expand BMP training for loggers, foresters, and landowners sponsored by Certified Logging Professional program, University of Maine, Maine Forest Products Council/Sustainable Forestry Initiative, and other organizations, with MFS participation.</li> <li>4. Implement Memorandum of Understanding with DEP and Land Use Regulation Commission, to enforce jointly state water quality statutes as they apply to forestry, especially Shoreland Zoning Act (SZA), Natural Resources Protection Act (NRPA), Waste Discharge law, and LURC standards.</li> <li>5. Develop BMP site monitoring form</li> <li>6. Develop a BMP monitoring program to assess annually usage and effectiveness of BMPs (using the BMP monitoring form).</li> <li>7. Build working relationships with watershed councils, soil and water conservation districts, USDA county office personnel.</li> <li>8. Increase aerial survey hours and develop protocols/tracking systems to capture water quality issues visible from the air.</li> <li>9. Develop additional educational materials through the Forest Information Center</li> </ol>	<ol style="list-style-type: none"> <li>1. 2000</li> <li>2. ONGOING</li> <li>3. ONGOING</li> <li>4. ONGOING</li> <li>5. 1999-2000</li> <li>6. 1999-2000</li> <li>7. ONGOING</li> <li>8. 1999-2000</li> <li>9. OG</li> </ol>	<ol style="list-style-type: none"> <li>1. MFS</li> <li>2. MFS</li> <li>3. MFS</li> <li>4. MFS; DEP, LURC</li> <li>5. MFS</li> <li>6. MFS</li> <li>7. MFS</li> <li>8. MFS</li> <li>9. MFS</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. GF</li> <li>3. GF; SFI</li> <li>4. GF</li> <li>5. GF</li> <li>6. GF</li> <li>7. GF; 319</li> <li>8. GF</li> <li>9. GF</li> </ol>	note 1
Preharvest Planning Ch.3,II. A	<ol style="list-style-type: none"> <li>1. Promote establishment of new minimum distances of harvest activities from water bodies, in accordance with recommended statewide standard (implement changes as enacted).</li> <li>2. Conduct BMP training, in cooperation with SFI, regarding advanced BMPs, including planning and layout.</li> </ol>	<ol style="list-style-type: none"> <li>1. 2000</li> <li>2. 2000</li> </ol>	<ol style="list-style-type: none"> <li>1. MFS, DEP, LURC</li> <li>2. MFS</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. MFS, SFI</li> </ol>	notes 2, 3

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MM ref #	Actions	Schedule	Lead Ag'y	Funding	Notes
Streamside Management Areas Ch.3, II B	<p>1. Regulate timber harvest activities in accordance with existing pertinent State laws and rules, including NRPA, Shoreland Zoning Act, Waste Discharge, Land Use Regulation Act and LURC Ch. 10 rules, which limit harvest and soil disturbance near water bodies.</p> <p>2. Promote compliance of timber harvest activities with above statutes and voluntary BMPs; conduct field inspections of harvests and interventions to bring about compliance as necessary; refer violations to DEPor LURC for further enforcement.</p> <p>3. Promote clarification of the stream definition, increased filter strip widths, and extended protections to smaller, headwater streams, in accordance with the proposed statewide timber harvesting standards, and implement changes as enacted</p>	<p>1.ONGOING</p> <p>2.ONGOING</p> <p>3. 2000</p>	<p>1. DEP; LURC</p> <p>2. MFS</p> <p>3. MFS, DEP, LURC</p>	<p>1. GF</p> <p>2. GF</p> <p>3. GF</p>	<p>note 2, 5</p>
Road Construction and Management Ch.3, II.C & D.	<p>1. Regulate construction of forest management roads in accordance with existing pertinent State laws and rules, including NRPA, Shoreland Zoning Act, Waste Discharge, Land Use Regulation Act and LURC Ch. 10 rules, and the Erosion and Sedimentation Control Act, including adequate design of road crossings and erosion control measures.</p> <p>2. Promote compliance of timber harvest activities with above statutes and voluntary BMPs; conduct field inspections of harvests and interventions to bring about compliance as necessary; refer violations to DEPor LURC for further enforcement.</p>	<p>1.ONGOING</p> <p>2.ONGOING</p>	<p>1. DEP; LURC</p> <p>2. MFS</p>	<p>1. GF</p> <p>2. GF</p>	<p>note 4</p>
Timber Harvesting Ch.3, II.E..	<p>1. Regulate timber harvest activities in accordance with existing pertinent State laws and rules that address harvest layout, skid trail and stream crossing erosion control, design standards, and setbacks from waterbodies.</p> <p>2. Promote compliance of timber harvest activities with above statutes and voluntary BMPs; conduct field inspections of harvests and interventions to bring about compliance as necessary; refer violations to DEPor LURC for further enforcement.</p> <p>3. Require harvest plans, under revised Maine Forest Practices Act, for new clearcuts over 20 acres, that must include an assessment of erosion</p>	<p>1.ONGOING</p> <p>2.ONGOING</p> <p>3. 10/1999</p>	<p>1. DEP, LURC</p> <p>2. MFS</p> <p>3. MFS</p>	<p>1. GF</p> <p>2. GF</p> <p>3. GF</p>	<p>note 2, 4, 5</p>

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	<p>potential, and actions that will be taken to protect riparian zones and minimize erosion. Harvest plans for clearcuts &gt;75 acres will require prior review by MFS.</p> <p>4. Promote clarification of definitions, increase filter strips, and increase protections for headwater streams in accordance with recommended statewide standards, and implement changes as enacted</p>	4. 2000	4. MFS, DEP, LURC	4. GF	
<p>Site Prep &amp; Forest Regeneration Ch.3,II.F.</p>	<p>1. Regulate site preparation and forest regeneration activities as they are impacted by existing water quality regulations, especially NRPA, Shoreland Zoning Act, Waste Discharge, Land Use Regulation Act and LURC Ch. 10 rules, and the Erosion and Sedimentation Control Act.</p> <p>2. Promote compliance of site prep and regeneration activities with above statutes and voluntary BMPs; conduct field inspections of activities and interventions to bring about compliance as necessary; refer violations to DEP or LURC for further enforcement.</p>	<p>1.ONGOING</p> <p>2.ONGOING</p>	<p>1. DEP, LURC</p> <p>2. MFS</p>	<p>1. GF</p> <p>2. GF</p>	
<p>Fire Management Ch.3,II.G</p>	N/A				note 6
<p>Revegetation of Disturbed areas Ch.3,II.H</p>	<p>1. Regulate timber harvesting activities under state Erosion and Sedimentation Control Act and NRPA.</p> <p>2. Promote use of BMPs including reseeded and mulching of disturbed areas; promote compliance with new DEP requirements for preventive site stabilization under Erosion and Sedimentation Control Act and NRPA; refer violations to DEP for enforcement.</p>	<p>1.ONGOING</p> <p>2.ONGOING</p>	<p>1. DEP</p> <p>2. MFS</p>	<p>1. GF</p> <p>2. GF</p>	note 4
<p>Forest Chemical Management Ch.3,II.I.</p>	<p>1. Regulate forestry applications of chemicals through State's Board of Pesticide Control</p>	1.ONGOING	1. BPC	1. GF	

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MM ref #	Actions	Schedule	Lead Ag'y	Funding	Notes
Wetland Forest Management Ch.3,II.J.	1. Regulate wetland forest management activities through state regulations including NRPA, Shoreland Zoning Act, Waste Discharge, Land Use Regulation Act and LURC Ch. 10 rules, and the Erosion and Sedimentation Control Act. 2. Promote compliance with above statutes and voluntary BMPs; conduct field inspections of harvests and interventions to bring about compliance as necessary; refer violations to DEP or LURC for further enforcement. 3. Study forest practices and water quality issues related to vernal pools, forested and nonforested wetlands, and watersheds, in addressing water quality benchmarks by 2003-5, in accordance with the 1999 State of the Forest report	1.ONGOING  2.ONGOING  3. 2003-2005	1. DEP, LURC  2. MFS  3. MFS	1. GF  2. GF  3. GF, other	note 1

Notes:

1. 1999 State of the Forest Report discussed water quality issues and set 5 indicators of water quality for which specific forestry benchmarks will be developed by 2002-2005; aquatic biota in streams, compliance with BMPs, adequate levels of coarse woody debris in streams, water physical and chemical parameters, and flow levels.
2. MFS produced a report (January 1999), in consultation with DEP and LURC, proposing new statewide timber harvesting standards regarding erosion control and water quality BMPs. Legislative consideration is expected in 2000.
3. Revised BMP manual will include expanded planning section. Completion is expected in 2000.
4. The Erosion and Sedimentation Control Act mandates use of hay bales, silt fence, and mulch whenever the potential for erosion off-site exists.
5. Title 38 MRSA Section 417 prohibits placement of forest products refuse in, or on areas where they may wash into, waters of the state, including streams.

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6. Prescribed fire is used on an extremely limited basis in Maine: less than 50 acres are so burned annually. Wildfire suppression, while a common activity, generally takes place on very limited acreages, with few firelines constructed and with potential impacts to streams relatively insignificant.

### **3. Urban Sources**

This part provides five year implementation plans for each of the following types of urban NPS sources:

- Urban runoff - new development;
- Urban runoff - site development
- Construction site - erosion and sedimentation control;
- Construction site - chemical control;
- On-site disposal systems;
- Pollution prevention (public outreach and education); and
- Roads, highways and bridges

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**3a. Urban runoff - new development**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
Reduce TSS loadings by 80%, control peak runoff rates and volume compared to pre-development levels Ch.4,II.A.	<ol style="list-style-type: none"> <li>1. Regulate new development activities under authorities identified in Me. Coastal NPS doc., U-23-24, as well as State storm water law and DEP storm water rules, with focus on priority watersheds and State erosion and sedimentation law.</li> <li>2. Revise of storm water BMP manual</li> <li>3. Develop approach for consideration of storm water management requirements in review criteria and technical assistance of Growth Management Program</li> <li>4. Public education and outreach through (1) NPS Training Center targeted at businesses, design engineers, municipal officials including CEOs, and the public and (2) Municipal Code Enforcement Officer Certification Program, SPO.</li> <li>5. DEP rulemaking to amend definition of watersheds of rivers and streams that are "most at risk" and establish storm water standards for new development in those areas</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. 2000</li> <li>3. 2003</li> <li>4. ON-GOING</li> <li>5. 2000</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2. DEP</li> <li>3. SPO</li> <li>4. DEP; SPO</li> <li>5. DEP</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. GF</li> <li>3. [GF]; [CZMA]</li> <li>4. 319; [CZMA]</li> <li>5. GF</li> </ol>

**3b. Urban runoff - site development**

<b>MM ref #</b>	<b>Actions</b>	<b>Sched- ule</b>	<b>Lead Ag'y</b>	<b>Funding</b>
Plan, design, and build sites to preserve areas enhancing water quality; limit impervious area, land disturbance, including disturbance of natural drainage features Ch.4,II.C.	1. Regulate new development activities under authorities identified in Me. Coastal NPS doc., U-30-32, as well as State storm water law and DEP storm water rules, with focus on priority watersheds, and State erosion and sedimentation law.	1.ON- GOING	1 DEP	1. GF
	2. Consideration of natural drainage and other water quality issues, through Growth Management Act's comprehensive planning process for designation of rural and growth areas	2. ON- GOING	2. SPO	2. GF
	3. See Construction site - erosion and sedimentation control table, below re: CEO training and technical assistance through Regional Planning Commissions			

**3c. Construction site - erosion and sedimentation control**

<b>MM ref #</b>	<b>Actions</b>	<b>Sched- ule</b>	<b>Lead Ag'y</b>	<b>Funding</b>
During construction, reduce erosion and sediment on-site; implement an approved erosion and sedimentation control plan Ch.4,III.A.	1. Regulate construction activities under authorities identified in Me Coastal NPS doc., U-33, in addition to State erosion and sedimentation control law	1. ON- GOING	1. DEP	1. GF
	2. CEO training regarding sedimentation and erosion control plan (Shoreland zoning law requires sed. and ero. plan for all regulated developments within 250' of water body.)	2. ON- GOING	2. SPO	2. GF; CZMA
	3. Technical assistance to municipalities through Regional Commissions (RCs) under RCs' annual work contract with SPO		3. SPO	3. CZMA

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For details, refer to the Developed Areas: Erosion & Sedimentation, Actions (see page 8)

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**3d. Construction site - chemical control**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
During construction, ensure proper use, generation, storage, and handling of toxic materials and nutrients Ch.4,III.B (1-3)	1. Implement existing regulatory authorities to ensure proper use, generation, storage, and disposal of toxic materials and nutrients. <i>See</i> Me, Coastal NPS Program doc., U-35 -36	ON-GOING	DEP; DAFRR; municip.	GF CZMA
	2. NPS Training Center will develop and distribute guidebook re: chemical control based on State of Va. model for use by industry and municipal officials	2004	DEP	319 (CZMA/62 17)
	3. NPS Training Center will develop and SPO's CEO training program will help provide a program for CEOs and local officials to incorporate need for appropriate handling of chemicals at construction sites.	2003- prog. dev. 2004 - program delivery	DEP; SPO	319; (CZMA/62 17)

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**3e. On-site disposal systems (OSDS)**

<b>MM ref #</b>	<b>Actions</b>	<b>Schedule</b>	<b>Lead Ag'y</b>	<b>Funding</b>
New OSDS - Ch.4, V.A. (1-5)	[1. Regulate (permit) new OSDS under authorities cited in Me. Coastal NPS doc., U-39-40	OG	DHE	dedicated revenue from permit fees
	2. Spot check LPT's inspections of new system installations	2000-OG	DHE	dedicated revenue from permit fees
	3. Prepare OSDS Program Evaluation report	2004	DHE	dedicated revenue from permit fees
Operating OSDS- Ch. 4,V.B. (1)	1. Regulate (permit) operating OSDS under authorities identified in Me. Coastal NPS doc., U-41	OG	DHE	dedicated revenue from permit fees
Operating OSDS- Ch.4,V.B. (2,3)	2. Amend State Plumbing Inspector statute to authorize inspections by State Plumbing Inspector	2,000	DHE	dedicated revenue from permit fees
	3. Amend Subsurface Waste Disposal rules, CMR sec. 241 (change of use criteria)	2000	DHE	dedicated revenue from permit fees
	4. Public outreach: lake association, lake shore landowners, etc.	OG	DHE	dedicated revenue from permit fees
	5. Continue the "Fix ME Program", low interest loans for OSDS replacement	OG	DEP	State Revolving Fund
	6. Rulemaking to establish inspection criteria	2001	DHE	dedicated revenue from permit fees
	7. Develop system for periodic inspection, e.g., at point of sale		DHE	dedicated revenue from permit fees
	8. Prepare report to Legislature on the incidence of OSDS that malfunction or pollute surface or ground water	8. 2000	8. DHE	8. dedicated revenue from permit fees
	9. Maintain Small Community Grants Program to municipalities to help replace malfunctioning OSDS that are polluting a waterbody or causing a public nuisance	9. OG	9. DEP DHE	9. State bond
	10. Address adequacy of separation distance between OSDS and high water table	10. 1999		

**3f. Pollution prevention (public outreach and education)**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
Implement pollution prevention and education programs to reduce NPS from households, storm drains, recreation areas, OSDS, and comparable sources Ch.4,VI.A.	<ol style="list-style-type: none"> <li>1. Technical assistance and public outreach and education targeted at municipalities, business and industry and general public through DEP's NPS Training Center and other State efforts. <i>See</i> Part Two, Key Elements II, IV and VI (NPS Prevention)</li> <li>2. Implement existing pollution pollution and hazardous waste reduction program cited in Me. Coastal NPS doc., U-43.</li> <li>3. Used oil recycling program</li> <li>4. Continue NPS Awareness Campaign to build general public awareness of their role in preventing water pollution</li> <li>5. Continue providing water pollution education materials for use by Maine teachers and their students</li> </ol>	<ol style="list-style-type: none"> <li>1.ON-GOING</li> <li>2.ON-GOING</li> <li>3. OG</li> <li>4. OG</li> <li>5. OG</li> </ol>	<ol style="list-style-type: none"> <li>1.DEP</li> <li>2.DEP</li> <li>3. DEP</li> <li>4. DEP</li> <li>5. DEP</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. GF</li> <li>3. GF</li> <li>4. 319</li> <li>5. 319 and GF</li> </ol>

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**3g. Roads, highways, bridges**

MM ref #	Actions	Schedule	Lead Ag'y	Fund - ing	Notes
Planning, Siting and Developing Roads & Highways Ch.4,VII.A.	<ol style="list-style-type: none"> <li>1. Regulation of transportation projects under authorities cited in Me. Coastal NPS doc. U-45-47</li> <li>2. For all MDOT transportation projects, implementation of BMPs under MOA with DEP</li> <li>3. Installation of permanent erosion and sedimentation control measures on all projects funded through Biennial Transportation Improvement Program (BTIP)</li> <li>4. Public outreach and education, including dissemination of BMP manual, by MDOT/local roads division</li> <li>5. "Special provision 107" of the MDOT Standard Contract Specifications requires all MDOT contractors to write an erosion control plan and include implementation costs in the bid price</li> <li>6. Public education and outreach to municipal officials and others regarding State storm water and erosion and sed. laws</li> <li>7. Initiate legislation for State bond funds to remediate transportation-related NPS problems in priority watersheds</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. ON-GOING</li> <li>3. ON-GOING</li> <li>4. ON-GOING</li> <li>5. 2000 - ON-GOING</li> <li>6. 2001</li> <li>7. 2000 or 2001</li> </ol>	<ol style="list-style-type: none"> <li>1.DEP</li> <li>2.-5. MDOT</li> <li></li> <li></li> <li></li> <li>6. DEP</li> <li>7. DEP</li> </ol>	<ol style="list-style-type: none"> <li>1.GF; T21; HF</li> <li>2-5. T21; HF</li> <li></li> <li></li> <li></li> <li>6. GF</li> <li>7. [State bond]</li> </ol>	MDOT reviews and revises annually, in consultation with an advisory board, BMPs applicable to transportation projects
Bridges Ch.4,VII.B.	<ol style="list-style-type: none"> <li>1. Regulate bridge projects under authorities cited in Me. Coastal NPS doc. U-49</li> <li>2. Maintenance of all 1500 steel bridges in Maine in accordance with bridge-specific BMPs see Me. Coastal NPS doc. U-49</li> <li>3. "Special provision 107" of the MDOT Standard Contract Specifications requires all MDOT contractors to write an erosion control plan and include implementation costs in the bid price.</li> <li>4. Public outreach and education, including dissemination of BMP manual, by MDOT/local roads division</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. ON-GOING</li> <li>3. 2000- ON-GOING</li> <li>4. ON-GOING</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2-4. MDOT</li> <li></li> <li></li> </ol>	<ol style="list-style-type: none"> <li>1.GF;</li> <li>2-4. T21; HF</li> <li></li> <li></li> </ol>	
Construction projects; reduce erosion and sedimenta-	<ol style="list-style-type: none"> <li>1. Regulate bridge projects under authorities cited in Me. Coastal NPS doc. U-50-51</li> <li>2. "Special provision 107" of the MDOT Standard Contract</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. 2000-</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2-5.</li> </ol>	<ol style="list-style-type: none"> <li>1. GF; T21; HF</li> <li>2-5. T21;</li> </ol>	

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<p>tion Ch.4,VII.C.</p>	<p>Specifications requires all MDOT contractors to write an erosion control plan and include implementation costs in the bid price.  3. For all MDOT transportation projects, implementation of BMPs under MOA with DEP  4. Public outreach and education, including dissemination of BMP manual, by MDOT/local roads division  5. Surface Water Protection Program - provide funding to abate sedimentation, erosion and storm water problems from highways eligible for federal funds</p>	<p>ON-GOING  3. ON-GOING  4. ON-GOING  5. ON-GOING</p>	<p>MDOT</p>	<p>HF</p>	
<p>Construc-  tion site chemical  control  Ch.4,VII.D.</p>	<p>1. Regulate activities a construction sites under authorities cited in Me. Coastal NPS doc. U-52-53  2. Public outreach and education, including dissemination of BMP manual, by MDOT/local roads division</p>	<p>1. ON-GOING  2. ON-GOING</p>	<p>1. DEP  2. MDOT</p>	<p>1. GF:  2. T21;  HF</p>	
<p>Operations &amp;  Mainten-  ance  Ch.4,VII.E.</p>	<p>1. Initiate, through phased fleet replacement, program to reduce road sand application on MDOT maintained roads by @40%  2. MDOT Environmental Management System (self-audit of facilities to identify and abate potential hazardous waste and related NPS issues)  3. Public outreach and education, including dissemination of BMP manual, by MDOT/local roads division  4. Salt and sand storage facilities:  a. Finalize project priority rankings for salt and sand storage facilities statewide;  b. develop rules regarding the operations and management of salt and sand storage areas;  c. continue process for registration of salt and sand storage areas;  d. outreach and education to municipalities regarding salt and sand storage practices</p>	<p>1. 2000 - 2004  2. ON-GOING  3. ON-GOING  4. 2001</p>	<p>1. DEP  2-3. MDOT  4. DEP</p>	<p>1. GF:  T21; HF  2-3.T21;  HF  4. [State bond]</p>	<p>1.impleme-  nted as  portions of  road main-  tenance  fleet are  replaced  annually.  2. Audit of  maintenanc  e garages  on a 3 year  cycle</p>

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**4a. Marinas - siting**

<b>MM ref #</b>	<b>Actions</b>	<b>Schedule</b>	<b>Lead Ag'y</b>	<b>Funding</b>
Marina flushing Ch.5,II.A.	1. Regulate new marina development under authorities cited in Me. Coastal NPS doc., M-12.	OG	DEP	
	2. disseminate Marina and Boatyard BMP Manual, 2nd edition 3/99	OG	DEP	
Water Quality assessment Ch.5,II.B.	1. Regulate new marina development under authorities cited in Me. Coastal NPS doc. , M-13, and storm water law (for new facilities with greater than 20,000 square feet of impervious surface)	OG	DEP	
Habitat assessment Ch.5,II.C.	1. Regulate new marina development under authorities cited in Me. Coastal NPS doc., M-14.	OG	DEP	
Shoreline stabilization Ch.5,II.D.	1. Regulate new marina development under authorities cited in Me. Coastal NPS doc., M-14	OG	DEP	
	2. Encourage use of erosion control measures described in Marinas and Boatyard BMP manual	OG	DEP	
	4. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG: program implementation	DEP	
Storm water runoff management Ch.5,II.E.	1. Regulate new marina development under authorities cited in Me. Coastal NPS doc. M-16-17.	OG	DEP	
	2. Regulate new and existing marinas and boatyards under water poll. control law, erosion and sedimentation control law.	OG	DEP	
	3. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG: prog. implementation	DEP	
	4. Develop State general permit for implementation at marinas and boatyards	2001	DEP	

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Fueling Sta. design Ch.5,II.F.	1. Regulate new fueling sta. under authorities cited in Me. Coastal NPS doc., M-18. Licensing of all fuel dispensing systems is through the Bureau of Remediation, DEP	OG	DEP	
	2. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG: prog. implementation	DEP	
Sewage facility Ch.5,II.G.	1. Regulate new and existing pump out and other sewage facilities under authorities cited in Me. Coastal NPS doc., M-19	OG	DEP	
	2. Public outreach to encourage use of pump out facilities	OG	DEP	
	3. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG: prog. implementation	DEP,SP O	

**4b. Marinas - operations and maintenance**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
Solid waste management	1. Regulate new and existing facilities under authorities cited in Me. Coastal NPS doc., M-20	OG	DEP	
Ch.5,III.A.	2. Encourage use of applicable BMPs through local marine debris projects	2001 - OG	SPO	
	3. Public outreach and ed. re: marine solid waste issues through annual Coastal Cleanup	OG	SPO	
	5. Provide training through NPS training Center - BMP manual refers to this activity	OG	DEP	
	6. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001 develop 2002-OG: implement	DEP	
Fish waste management Ch. 5,III.B.	1. Regulate fish waste activities under authorities cited in Me. Coastal NPS doc., M-22	OG	DEP	
	2. Work with industry to encourage proper disposal and use of applicable BMPs	2002	DEP	

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Liquid material management; Ch.5, III. C	1. Regulate disposal activities under authorities cited in Me. Coastal NPS doc., M-22. Disposal is regulated by the Bureau of Remediation, DEP	OG	DEP	
	2. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001 develop 2002-OG prog.implementat ion	DEP	
	3. Provide training through NPS training Center - BMP manual refers to this activity	OG	DEP	
Petroleum control Ch.5,III.D.	1. Regulate petroleum discharges under authorities cited in Me. Coastal NPS doc., M-22 Management is through the Bureau of Remediation, DEP	OG	DEP	
	2. Encourage use of applicable BMPs and petroleum collection through local marine debris projects .	OG	SPO	
	3. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG, prog.implement	DEP	
Boat cleaning Ch.5, III.E.	1. Regulate boat cleaning areas under authorities cited in Me. Coastal NPS doc., M-26	OG	DEP	
	2. Targeted public outreach and education to encourage use of applicable BMPs .	OG	DEP	
	3. Develop and encourage industry participation in "Green Marina" program for existing and new marinas and boatyards	2001: prog. development 2002-OG: prog.implement	DEP	
	4. Provide training for operators through NPS training Center -BMP manual refers to this activity	OG	DEP	
Public educ. Ch.5,III.F.	Public education and outreach efforts referenced in this section, including "Green Marinas"; BMP manual distribution; brochures, television spots, marine debris programs; boat pump out program; others	OG		
Sewage facil. Ch.5,III.G.	1. Regulate pump out facilities under authorities cited in Me. Coastal NPS doc., M-28; administer program to increase marina pump out facilities	OG	DEP	
	2. Targeted public outreach and education to encourage use of applicable BMPs .	OG	DEP	
Boat operation,	Regulate boat speed under authorities cited in Me. Coastal NPS doc., M-29	OG	DIFW;	

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Ch.5.,III.H.			DMR	
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**5a. Hydromodification - Channels and Channelization**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
Physical and chemical characteristics of surface waters Ch.6,II.A.	1. Regulate channel modification projects under authorities cited in Me Coastal NPS doc., H-8  2. Federal (ACOE) channel maintenance actions subject to authorities cited in 1., above, and other enforceable authorities under CZMA, section 307 (federal consistency)	1. ON-GOING  2. ON-GOING	1. DEP 2. DEP; SPO	1. GF 2. GF; CZMA
Instream and riparian habitat restoration Ch.6,II.B.	1. Regulate channel modification projects under authorities cited in Me Coastal NPS doc., H-8  2. Federal (ACOE) channel maintenance actions subject to authorities cited in 1., above, and other enforceable authorities under CZMA, section 307 (federal consistency)	1.ON-GOING  2.ON-GOING	1.DEP 1.DEP; SPO	1.GF; CZMA 2.GF; CZMA

**5b. Hydromodification - Dams**

MM ref #	Actions	Schedule	Lead Ag'y	Funding
Erosion and sedimentation control Ch.6,III.A.	1. Regulate dam activities under authorities cited in Me Coastal NPS doc., H-10, as well as state erosion and sedimentation law	1.ON-GOING	1. DEP	1. GF
Chemical and pollutant control Ch.6,III.B.	1. Regulate dam activities under authorities cited in Me Coastal NPS doc., H-11  2. Include information about chemical and pollutant control at dam sites in information provided in guidebook re: chemical control to be developed by DEP's NPS Training Center	1. ON-GOING 2. 2004	1. DEP 2. DEP	1. GF 2. [319; CZMA/6217]
Protection of Surface Water Quality and Instream and Riparian Habitat Ch.6,III.C.	1 Regulate dam activities under authorities cited in Me Coastal NPS doc., H-12  2. Address issue of the relationship between nonpoint source problems and excessive effect of excessive surface water withdrawals in rules, policy or programs to be developed regarding water use and water quality	1.ON-GOING 2. 2004	1.DEP 2. DEP	1. GF 2. [319]; [GF]

**6. Wetlands, riparian areas and vegetated treatment systems**

<b>MM ref #</b>	<b>Actions</b>	<b>Schedule</b>	<b>Lead Ag'y</b>	<b>Funding</b>
Protect from adverse effects wetlands and riparian areas that serve NPS abatement function while protecting their other functions and values Ch.7,II.A.	<ol style="list-style-type: none"> <li>1. Regulate wetlands under authorities cited in Me. Coastal NPS doc., W-7</li> <li>2. Casco Bay pilot project: complete characterization of wetlands based on functions provided and identification of priority wetlands and wetlands systems for specific functions and combinations of functions, including sediment retention and flood flow alteration</li> <li>3. Work with municipalities to promote use of wetlands characterization developed by Casco Bay pilot for use in land use planning</li> <li>4. CEO training</li> <li>5. Identify other watersheds in southern Maine at risk from development and selectively characterize wetlands functions</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. 2000</li> <li>3. 2000-2002</li> <li>4. ON-GOING</li> <li>5. ON-GOING</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2. SPO/DEP</li> <li>3. SPO/DEP</li> <li>4. SPO</li> <li>5. DEP</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. EPA grant</li> <li>3. [CZMA]</li> <li>4. CZMA</li> <li>5. [319]</li> </ol>
Promote restoration of preexisting functions in wetlands and riparian areas that provide NPS abatement Ch.7,II.B.	<ol style="list-style-type: none"> <li>1. Regulate wetlands under authorities cited in Me. Coastal NPS doc., W-8</li> <li>2. Casco Bay pilot - identify and map wetlands, based on functions, that present restoration opportunities</li> <li>3. Plan for in lieu fee, e.g., work with ACOE et al. on in lieu fee system and related regulatory issues</li> <li>4. Establish Wetlands Interagency Team, as part of the State's Wetlands Conservation Plan, to identify priority issues and facilitate wetlands policy development and implementation</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. 2001</li> <li>3. 2000-2001</li> <li>4. 2000 - ON-GOING</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2. SPO/DEP</li> <li>3. SPO</li> <li>4. SPO/DEP</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. EPA grant</li> <li>3. EPA grant</li> <li>4. GF</li> </ol>
Promote vegetated treatment systems that serve significant NPS function Ch.7,II.C.	<ol style="list-style-type: none"> <li>1 Regulate wetlands under authorities cited in Me. Coastal NPS doc., W-9</li> <li>2. Promote use of vegetated treatment systems for projects subject to site law and storm water law standards</li> </ol>	<ol style="list-style-type: none"> <li>1. ON-GOING</li> <li>2. ON-GOING</li> </ol>	<ol style="list-style-type: none"> <li>1. DEP</li> <li>2. DEP</li> </ol>	<ol style="list-style-type: none"> <li>1. GF</li> <li>2. GF</li> </ol>

### 7. Watershed Management and Protection

note: For additional components of the State's watershed protection effort, *see* Part One, Key Elements 2 and 3 (Watershed Approach) and Pollution Prevention (Public Education and Outreach) table, above

MM ref #	Actions	Schedule	Lead Ag'y	Fund-ing
Watershed Protection Program to avoid conversion of sensitive areas, preserve ecologically significant areas, and site development to protect water bodies Ch. 4,II.B and IV.A.	1. Maine Watershed Management Committee (MWMC) and its coastal, lakes, and rivers/streams subcommittees updates watershed priority list.	1. 2004	1. DEP	1.GF
	2. MWMC meetings to: identify collaborative watershed projects, provide updates on individual agency activities. Committee meets roughly 6 times per year	2. Ongoing,	2. DEP	2. GF
	3. MWMC plans for strategy to obtain additional state resources to enhance federal investments in NPS planning and abatement	3. 2000	3.DEP/ SPO	3. GF 4. 319; [State bond]
	4. State NPS grants awarded with preference to projects in priority watershed areas; Incremental 319 funds are allocated to projects in priority areas. Annual RFP issued in January; due date in April, selection in summer, awards in January	4. ON-GOING	4. DEP	5. GF; CZM 6. GF; CZM 7. GF; CZM 8. GF
	5. Regional Planning Commissions offer support for local watershed management planning as an elective activity under state-funded work programs	5. ON-GOING	5. SPO	
	6. Identification of options for consideration of watershed protection in State review of local comprehensive plans under Growth Management law	(annual) 6. 2000-ON-GOING	6. SPO	
	7. SPO's livable communities project reduces state investment in development in env. sensitive areas.	7. ON-GOING	7. SPO	
	8. Identification of options for consideration of watershed protection in selection criteria for State investments (land acquisition) in open space through the Land for Maine's Future Program and other programs	8.2000	8. SPO	

## **8. NPS Program Assessment and Planning**

SPO and DEP will evaluate the progress of the NPS program to date and develop a second five year plan identifying on-going and any additional implementation actions for 2005 - 2009 as follows:

- **2003:** evaluation of efficacy of backup authorities through consideration of the numbers of complaints regarding NPS violations, the number and nature of administrative enforcement orders regarding NPS violations, and the number and nature of legal actions to enforce NPS requirements or remedy NPS problems;
- **2004:** review the State Water Quality Assessment reports (CWA Section 305(b)) and other available water quality data for information regarding water quality status, trends and areas of concern; revision and update list of NPS Priority Watersheds; and
- **2004:** statistical studies of overall BMP usage rates, by source category (*see* Part Four, below), as well as on-going program work; and
- **2004:** development of the next 5 year plan identifying on-going and any additional implementation actions for 2005 - 2009, based on NPS program assessment, public input, EPA/NOAA program review, and other information.

As noted above, State agencies prepare annual work plans which provide an additional, significant and timely opportunity to address emerging NPS issues.

### **B. Phase II (2005 - 2009)**

Details of Phase II of the State's NPS Program will be shaped by needs and issues identified during the 2003-2004 assessment and planning processes. This section outlines anticipated on-going actions and additional program items currently planned for this time period, as well as the planning process by which the State will identify needed program enhancements. Specific actions to be undertaken during Phase II will depend in part on the availability of funding through Section 6217, Section 319, and other sources.

#### **1. On-going Program Actions**

During this period, the State plans to continue implementation of actions identified in each NPS source category as on-going in the Phase I (2000-2004) plan. Many of these actions involve implementation of regulatory programs.

## 2. Anticipated Additional Actions

At this time, the following additional implementation actions are anticipated:

- **July 1, 2005:** the soil erosion and sedimentation law becomes effective for property that is located in the watershed of a body of water most at risk as identified in DEP's storm water rules adopted pursuant to 38 M.R.S.A. §420-D and that is subject to erosion of soil or sediment into a protected natural resource as defined in 38 M.R.S.A. § 480-B, sub-§ 8;
- **2007:** Erosion control requirements under Nutrient Management law (7 M.R.S.A. § 4204) and DAFRR rules (Ch. 565) are to be fully implemented; and
- **2007:** Nutrient Management Plans, to be adopted by 2001, are to be fully implemented

## 3. NPS Program Assessment and Planning

SPO and DEP will evaluate the progress of the program to date and develop a third five year plan identifying on-going and any additional implementation actions for 2010 - 2014 as follows:

- **2007:** evaluation of efficacy of backup authorities through consideration of the numbers of complaints regarding NPS violations, the number and nature of administrative enforcement orders regarding NPS violations, and the number and nature of legal actions to enforce NPS requirements or remedy NPS problems;
- **2008:** review the State Water Quality Assessment reports (CWA Section 305(b)) and other available water quality data for information regarding water quality status, trends and areas of concern;
- **2008:** statistical studies of overall BMP usage rates, by source category (*see* Part Four, below), as well as on-going program work;
- **2008:** revision and update list of NPS Priority Watersheds; and
- **2008:** development of the next 5 year plan identifying on-going and any additional implementation actions for 2010-2014, based on public input, EPA/NOAA program review, water quality survey results and other information.

As noted above, State agencies prepare annual work plans which provide an additional, significant and timely opportunity to address emerging NPS issues.

### **C. Phase III (2010 - 2014)**

Details of Phase III of the State's NPS Program will be shaped by needs and issues identified during the 2008 -2009 assessment and planning processes. This section outlines anticipated on-going actions and additional program items currently planned for this time period, as well as the planning process by which the State will identify needed program enhancements. Specific actions to be undertaken during Phase III will depend in part on the availability of funding through Section 6217, Section 319, and other sources.

#### **1. On-going Program Actions**

During this period, the State plans to continue implementation of actions identified in each NPS source category as on-going in the Phase I (2000-2004) plan. Many of these actions involve implementation of regulatory programs.

#### **2. Anticipated Additional Actions**

- July 1, 2010: the soil erosion and sedimentation law becomes effective for all property statewide that is subject to erosion of soil or sediment into a protected natural resource as defined in 38 M.R.S.A. § 480-B, sub-§ 8

#### **3. NPS Program Assessment and Planning**

SPO and DEP will evaluate the overall progress of the 15 year NPS strategy as follows:

**2012:** evaluation of efficacy of backup authorities through consideration of the numbers of complaints regarding NPS violations, the number and nature of administrative enforcement orders regarding NPS violations, and the number and nature of legal actions to enforce NPS requirements or remedy NPS problems;

- **2013:** review the State Water Quality Assessment reports (CWA Section 305(b)) and other available water quality data for information regarding water quality status, trends and areas of concern;
- **2013:** statistical studies of overall BMP usage rates, by source category (*see* Part Four, below), as well as on-going program work;
- **2014:** revision and update list of NPS Priority Watersheds; and
- **2014:** development of a final program assessment indicating rates of success in implementing 15 year strategy and, based on public input, EPA/NOAA program review, water quality survey results and other information, recommendation for further actions to maintain or improve effective management of nonpoint sources of pollution potentially affecting waters of the State.

## **PART FOUR: APPROACH AND SCHEDULE FOR TRACKING PROGRESS AND MAKING MIDCOURSE CORRECTIONS**

### **I. Means for Measuring Progress**

The State proposes to employ three principal means to determine the efficacy of regulatory and non-regulatory tools to measure progress toward full implementation of its Coastal NPS Program:

- Assessment of ambient water quality in Maine's waters; and
- Analysis of the extent of implementation of management measures, as determined by the use of applicable BMPs.
- NPS project specific monitoring

Where feasible, the State will also collect information on the cost of implementing "Actions" for meeting short and long-term objectives described in this plan, where those costs exceed what would already be required to meet existing regulations.

#### **A. Monitoring Ambient Water Quality.**

The State intends to use the existing process for development of bi-annual water quality reports pursuant to Section 305(b) of the Clean Water Act as a tool for identifying status and trends in ambient water quality and areas or types of water bodies where additional abatement or prevention is needed. During the initial five year planning period, State monitoring and assessment initiatives will be used to gather and assess pertinent data.

#### **B. Gauging BMP usage rates**

Over the period covered by the 15 year strategy, the State intends use 2 approaches to assess the rate of usage of BMPs. First where BMPs are used to comply with a permit, the State will evaluate program summary data such as permits issued, inspections, complaints, or enforcement actions. Second, the State intends to conduct three statistical surveys of BMP usage rates the following major non-point source categories: Forestry, Agriculture, Urban Development, and Marinas and Boatyards. The surveys are planned for 2004, 2009 and 2014 for use in determining progress in securing implementation of BMPs. These studies will be designed in consultation with NOAA, DEP, and stakeholders to ensure a representative and, as appropriate, statewide sample to estimate the current level of BMP usage. There are 56 management measure under CZARA and hundreds of specific BMP recommendations in the State BMP Guidelines or regulations. To achieve a cost effective practical survey method, the surveys may need to be designed to focus on a subset of BMPs within a major nonpoint source category.

#### **C. Project Specific Monitoring**

The State will integrate monitoring into select NPS projects that offer a reasonable opportunity to assess the connection between use of BMPs, load reduction, and ambient water quality improvements. DEP anticipates two types of projects: demonstration projects that measure the effectiveness of specific BMP types; and watershed projects that prompt implementation of BMPs and measure for improvement or restoration of water quality to attain classification standards.

The State intends to consider the results of BMP usage evaluation together with ambient and project specific water quality data, as reflected in 305(b) reports to identify trends in BMP usage and geographic areas or categories where additional measures or additional regulatory or non-regulatory tools may be needed. These studies are scheduled to coincide with and provide information useful for development of the five year plans covering the periods of 2004 - 2008 and 2009 - 2014. The final study is meant to assist in assessment of the State's success overall in implementing the 15 year strategy.

## **II. Measurable goals for tracking progress**

The State intends to use progress in implementation of BMPs in each major NPS category as an objective measure of progress in meeting its NPS program goals, including implementation of applicable 6217 management measures. The regulatory program assessments and periodic surveys described in the proceeding section will be the source of information used to establish benchmarks and gauge progress. The State does not intend to track implementation of specific BMPs or individual management measures. In the State's judgment these approaches would be inefficient in terms of the value of the information gained as compared with the cost in obtaining it and inconsistent with its intention to focus its strategy on management categories. The State currently enjoys substantial compliance with BMPs related to a number of management measures. In categories where the benchmark rate is currently being achieved, the State would work to ensure current rate is maintained or bettered.

In 2004-2005, the State intends to assess the rate of utilization of BMPs in order to establish a baseline for each major NPS source category against which to measure progress. Following establishment of this baseline, the State intends to use the following benchmarks to gauge progress:

- **2008:** for each major NPS source category examined, an increase over the established base line BMP use rate equal to one half that required for full implementation (e.g., a 75% use rate if the pertinent baseline is 50%);

- **2014:** 90% or better BMP use rate for each major NPS source category.

Information gained through these surveys will be augmented by NPS project-specific assessments and administrative activity tracking at a program or project level.

## **PART FIVE: USE OF BACKUP AUTHORITY AND ADDITIONAL MANAGEMENT MEASURES**

### **I. Use of Backup Authority<sup>16</sup>**

This Part concerns terms of the 6217 Program regarding enforceable mechanisms to ensure implementation of applicable management measures. As explained in Part Two, above, the State's NPS Program relies on a combination of regulatory and non-regulatory tools to ensure continuing improvement in its efforts to abatement nonpoint source pollution. As outlined in its 1995 Coastal NPS document, the State intends to rely in part on "backup measures"<sup>17</sup> as the enforceable mechanisms to ensure implementation of management measures regarding the following:

- Agriculture measures: Concentrated animal feeding operations; nutrient management; pesticide management; grazing management;
- Forestry measures (all);
- Hydromodification measures: Physical/chemical characteristics (existing sources); habitat restoration (existing sources);
- Marinas: boat cleaning; fish waste management; liquid material management; storm water runoff (existing sources);
- Chemical control (existing sources); and
- Urban sources: existing development; site development; sediment and erosion control.

On an on-going basis, particularly as DEP and other State agencies develop annual work plans, as well as during the process for development of the second and third five years plans, the State intends to consider the need for revision of existing or development of new specific enforceable mechanisms. *See* Section II, following.

### **II. Additional Management Measures**

The State intends to evaluate the need for additional management measures as part of its process for assessing the effectiveness of each five year plan covered by the strategy as well as the success of the strategy as a whole. Section V.C. of the State's Coastal Nonpoint Source Control

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<sup>16</sup> See footnote 2.

<sup>17</sup> This term is used to mean a generally applicable State law adequate to prevent or require remediation of NPS pollution as opposed to a law or rule directly applicable to a particular activity.

Program outlines the procedure by the State intends to analyze the need for and develop additional management measures. In the fourth year of each five year planning period (**2003, 2008, and 2013**, respectively), as part of an overall assessment of implementation of the preceding five year plan, the State intends to evaluate the need for additional management measures to ensure continued progress toward achievement of the strategies goals and objectives. In addition, State agencies will consider this need in developing annual agency work plans and budgets.

DEP in consultation with SPO and other State agencies will exercise best professional judgment on the need for consideration of additional management measures based on available water quality monitoring data, information on water quality trends reflected by recent 305(b) reports or comparable data sources, any new scientific or technical information, the BMP implementation surveys discussed above, and other pertinent information.

## **PART SIX: EXAMPLES OF WATER QUALITY IMPROVEMENT DUE TO NPS IMPLEMENTATION ACTIVITIES**

### **I. Overview**

Using Section 319 funding, DEP has since 1990 helped prompt installation of hundreds of “on-the-ground” BMPs (conservation practices) significantly reducing soil erosion, sedimentation, and pollutant loadings to water bodies. DEP and its public and private partners have also conducted several quantitative BMP pollutant removal studies that demonstrate the utility of specific BMP systems at reducing pollutants in storm water.

To date, most of the local NPS implementation projects have been directed at reducing export of phosphorus and protecting lake water quality through use of BMPs. DEP's management objective for lakes is to achieve a stable or improving trend in water quality based on long term data sets. To date, DEP has evaluated 184 lakes which meet the data requirements. There were positive trends detected in 117 lakes and negative trends in 67 lakes. DEP has not yet analyzed factors, such as land use patterns and resulting NPS loads in individual watersheds and meteorological conditions, that may account for these observations, nor has DEP evaluated individual lakes for indicators in ancillary data that might qualify the results. During the next year, DEP is planning to develop techniques to evaluate lakes on an individual basis to confirm the conclusions indicated by trend analyses.

To demonstrate trends in lake water quality, DEP is developing a data analysis tool that applies standard trend detection methods to existing long term water transparency (secchi disk) measurements. This approach is similar to that used in Minnesota. To qualify for our trend detection analysis, a lake must have 10 years of data with at least 4 months of secchi measurements. DEP is summarizing secchi measurements annually and comparing year to year data using Kendall-Tau statistical techniques to detect trend significance. A significant positive trend indicates improving water quality, whereas a negative trend indicates declining quality. Lakes with no significant trend are considered stable. The naturally high degree of variability in runoff and climate over the years and the significant lag time in lake water quality response to watershed cover conditions changes qualify any observations regarding trend.

Although a measurable response in water quality improvement on lakes can take anywhere from 10 to 20 years due the lag time that exists between watershed changes and lake water quality, there are good reasons to be confident that the cumulative effect of NPS abatement actions in recent years is helping stabilize or improve lake water quality. Notably, NPS abatement work or a combination of NPS and in-lake interventions has taken place in a number of lakes exhibiting significant positive trends. These waters include Damariscotta Lake, Long (St. Agatha) Lake, Cross Lake, Sabattus Lake, Annabessacook Lake, Cochnewagon Lake, and Chickawaukie Lake. In each case, it appears NPS work has contributed to the necessary phosphorus loading reduction. In other lakes, such as in China and Cobbossee Lakes, where positive trends have not

yet developed, DEP expects that continued NPS abatement and prevention efforts are vital to stabilizing and eventually improving adverse water quality conditions.

## II. Specific Examples

Some of the State's NPS projects, for the most part funded through Section 319 of the CWA, afford the opportunity to measure directly for improvement in water quality. The following are some NPS projects that yielded clear observational evidence or water quality data that demonstrates improvement in habitat or water quality:

- #97-03. Silver Spring Brook Watershed. 1997 to 1999. The Limestone Water District and the Town of Limestone joined together to work with private landowners to reduce NPS pollution affecting the town water supply, Silver Spring Brook. Prior to the 319 project, the raw water had failed to meet EPA turbidity requirements. Although portions of the project were only just completed, the District has already seen reduction in source water turbidity levels. Installed BMPs include farm access road reshaping, ditching and stream crossings, and cropland water diversion ditches. In addition, highly erodible lands adjacent to the stream have been enrolled in the USDA's Cropland Reserve Program and riparian buffers have been protected or installed.
- #95-20 Daigle Pond/DOT's BMP Demonstration. 1994-95 Maine Highway 161 ditches were unstable and washed plumes of soil into Daigle Pond each year. USDA staff even photographed a plume of soil sitting on top of the ice early one spring. This erosion problem was turning the pond brown and filling it in. The site is now stable, thus eliminating the major source of soil materials to the pond. The following BMPs were used : cut back banks, used bark mulch to stabilize slopes, plunge pools, and buffers.
- #92-10, #94-10. Bond Brook Watershed and Stone Brook 1992-1998. This project involved adoption of various BMPs, including stream bank protection and erosion and sediment control, to reduce sediment and water temperatures in order to restore fisheries. Subsequent fishery surveys conducted by the Maine Department of Inland Fisheries and Wildlife show a higher brown trout survival rate in Stone Brook and some reaches of Bond Brook. More watershed measures will be needed to protect the brook, especially in the rapidly urbanizing lower watershed area.
- #95-18 Jones Brook Restoration. 1995-96. A brown trout habit spawning area was restored by creating habitat structures and stabilizing eroding stream banks that had heavily silted in a section of Jones Brook, a tributary of China Lake.

- #92-11 Groundwater Protection Project. 1992-95. Farmers producing silage corn for dairy herds developed and adopted Nutrient Management Plans. Fourteen well points were driven to sample shallow groundwater at worst case locations adjacent to cropland. Two of the sites exceeded water quality standard for nitrate nitrogen. The farmers adopted reduced fertilizer and manure applications, and nitrate nitrogen levels dropped low enough to meet the safe drinking water maximum contaminate level standard.
- Twenty-five Mile Stream (Unity Pond) Watershed Project: 1991-95. Unity Pond (Class GPA) and the Sebasticook River (Class C) at the confluence of 25 Mile Stream are both non-attainment waters. The NRCS, Waldo County Soil and Water Conservation District, CES, and Unity College collaborated to reduce watershed sediment and phosphorus export to the Twenty-five Mile Stream watershed including Unity Pond. Section 319 funding supported the water quality monitoring and nutrient management. BMPs adopted included: 12 manure storage facilities; nutrient management plans prepared and implemented involving 10,000 acres of corn, grass and pasture land, including 5000 acres of corn cropland placed in rotations with grass and legumes; virtual elimination of winter manure spreading; 9000 feet of stream bank protect involving 7 livestock exclusion fencing sites; and private camp road and stream crossing BMPs. These improvements in land management were associated with a measured decrease in total phosphorus concentrations in streams based on pre- and post-implementation sampling conducted in 1988-89 and 1994-95.
- Potash Cove Demonstration Project; 1991-92. This project involved installation of BMPs to stabilize a rural roadway. BMP installation stopped sediment accumulation causing reduction of depth in the cove, turbidity plumes and associated excessive phosphorus discharges into the Potash Cove in Thompson Lake.
- Livestock Exclusion Demonstration, 1990-91 Kenduskeag Stream. Livestock exclusion fencing BMPs demonstrated physical revegetation and restoration of stream banks. Four sampling events taken after rainfall runoff events at seven sites demonstrated significant reduction of fecal coliform bacteria levels from three sites with total livestock exclusion compared to three sites in Kenduskeag Stream without livestock exclusion.

## **PART SEVEN: STATE APPROACH TO RESTORING WATERS LISTED UNDER SECTION 303(D) OF THE CLEAN WATER ACT (TMDLs).**

Section 303(d) of the Clean Water Act requires states to identify water body segments that do not attain water quality standards or that are imminently threatened and are not expected to meet state water quality standards even after the implementation of technology-based controls for both point sources and nonpoint sources of pollution. In developing the State of Maine's 303(d) list, DEP reviewed the 305(b) Water Quality Assessment report, including the 304(l) lists, the 314(a) Clean Lakes list, and the 319 State Non-Point Source Assessment. DEP also considered results of predictive modeling and reports of water quality problems identified by local, State or federal agencies or the public. The 303(d) process subsequently requires the establishment of Total Maximum Daily Loads (TMDLs) or other control methods in order to assure the attainment of water quality standards. As noted above, this report refers to water bodies for which TMDLs are required as "TMDL waters."

The State is required by 40 C.F.R. § 130.7 to identify a timetable to develop TMDLs within the next two years. EPA national policy also requires each state to determine a schedule for all TMDLs over the next thirteen year period. The 303(d) list identifies water quality-limited water bodies needing TMDLs along with causes of non attainment and proposed dates for completion of TMDLs.

DEP selected high priority waters, for which TMDLs will be first initiated, after considering the severity of the problem and the feasibility of correction, the value of the resource, and the level of local interest and support for restoring and protecting a water. Other factors that determine the timetable include pending State wastewater and National Pollutant Discharge Elimination System (NPDES) permits, water quality certifications (hydroelectric facilities) and treatment plant construction proposals. TMDLs for point sources may consist of discharge limitations, while those for non-point sources may involve implementation plans to control factors, such as various land-use activities, causing non-attainment. Region 1's July 1999 interim final guidance for lake phosphorus TMDL development: (1) refers states to the ME DEP's *Citizen Guide to Lake Watershed Surveys* as an effective approach for directing citizen efforts to identify and ultimately control nonpoint sources of phosphorus; and (2) characterizes Maine's lake protection and restoration approach as "an excellent example of a key component to a meaningful lake TMDL implementation plan where nonpoint sources dominate." DEP has hired an additional staff person to work specifically on the development of TMDLs for impaired lakes. The following table lists nonpoint source impaired waters scheduled for TMDL development through 2003.

### **Near Term TMDL Development for NPS Impaired Waters**

<b>Waterbody Name</b>	<b>Major Basin</b>	<b>Target Date (1998 303(d) List)</b>
Presque Isle Stream	Aroostook	2000
Meduxnekeag River	Meduxnekeag	2003
Jock Stream	Kennebec	2000
Salmon Falls River	Piscataqua	2003
Madawaska Lake	Aroostook	2000
Sebasticook Lake	Kennebec	2000
Cobbosseecontee Lake	Kennebec	2000
Stockton Harbor	Central Coastal	2000

The State currently has a fish consumption advisory for all fresh waters due to the presence of elevated mercury levels in fish tissue. Therefore, all fresh waters are "listed" due to this contamination problem. Although the State has been and continues to work to control local sources of mercury, air emissions, the majority of which originate beyond Maine's jurisdictional borders via long range atmospheric transport and deposition, are a major source of mercury contamination. Since the mercury contamination problem is common throughout the nation, the State recommends that the EPA take the lead in developing a protocol for preparing a technically feasible TMDL for mercury in surface waters.

For additional discussion regarding the relationship between TMDLs and the State's watershed priorities see Part Two, Key Element 5, *Process to Address Impaired or Threatened Waters*, above.

## Attachment #1 Forestry Goals

excerpted from a report to the Maine Legislature by the Department of Conservation, *The State of the Forest and Recommendations for Forest Sustainability Standards*, Maine DOC, June 17, 1999.

### Criterion 2: Water Quality, Wetlands and Riparian Zones

The scope of these benchmarks is limited currently to water quality as influenced by forest management in and around wetlands and riparian zones, including issues of sedimentation, water temperature, and the biological integrity of water bodies. Issues related to wildlife and plant communities in the riparian zone and wetlands will be addressed by 2002 under the biological diversity criterion.

The Maine Forest Service also plans to subject these benchmarks to further technical review by scientists from state agencies, academia, industry, and stakeholder groups. Particular attention will be paid to the effects of forest management on three areas: wetland hydrology and biology; vernal pools; and impacts to and assessment of headwater perennial or intermittent streams. Therefore, these benchmarks may be altered or expanded as that work evolves and as further review may indicate. Actions proposed for the Maine Forest Service (BMP monitoring) and other partners (e.g., in-line stream monitoring), as well as ongoing monitoring and research by other agencies and organizations, are likely to provide additional information that could serve as the basis for further refinement.

It must be recognized in reviewing these indicators and benchmarks that forests in Maine are diverse in their composition, ownership, and their proximity to and inputs from adjacent land uses. Watersheds in different parts of the state may include forestry, as well as agricultural, residential, industrial, and other land uses. In addressing forest sustainability, impacts from forest management on water quality, wetlands, and riparian zones may or may not be readily separable from influences of other land uses, and comparisons among watersheds or water bodies may be difficult. Hence, additional analysis and technical review may be required to develop meaningful, measurable benchmarks for forestry activities from the five indicators.

**Goal: Maintain or, where necessary, restore the chemical, physical and biological integrity of aquatic ecosystems in forested areas.**

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**Indicator 2.1:** Percent of water bodies in forest areas (e.g. stream kilometer, lake hectares) in which the aquatic life is **as naturally occurs** (see glossary term).

**Process Benchmark 2.1.1:** The Department of Environmental Protection should continue to develop and refine a statewide water quality monitoring system that can measure this indicator, and which relies on interagency partnerships to achieve by 2000.

**Process Benchmark 2.1.2:** The Maine Forest Service and the technical advisory group responsible for developing biodiversity benchmarks should review and if

necessary modify this indicator for use in the biodiversity benchmarking process by 2002.

**Process Benchmark 2.1.3:** The agencies charged with developing such a statewide water quality monitoring system should identify the current conditions and trends in this indicator and recommend interim/provisional benchmark(s) by 2003, and final benchmarks defining desired future conditions by 2005.

**Rationale:** The resident biological community is a key indicator of the health of aquatic ecosystems. In particular, organisms living at the bottom of water bodies or in the water column are sensitive to a variety of changes in water and habitat qualities, including silt, oxygen levels, temperature, nutrients and hydrologic regime. Certain fish species can tolerate only a narrow range of temperatures at different times in their life cycles.

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**Indicator 2.2:** Percent of harvested acres on which Best Management Practices for the protection of water quality are utilized effectively.

**Benchmark 2.2:** The percentage of harvested acres on which Best Management Practices for the protection of water quality are utilized effectively will increase from 47 percent in 1995 to 75 percent by 2005.<sup>18</sup>

**Rationale:** This indicator serves as a proxy for assessing water quality in forested ecosystems, based on the assumption that forest management operations effectively utilizing Best Management Practices coupled with progressive management approaches can minimize the effects of forest management on water quality.<sup>19</sup> This assumption will be revisited as more data become available from BMP utilization and water quality monitoring processes.

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**Indicator 2.3:** Percent of water bodies in forest areas (e.g. stream kilometers, lake hectares) with significant variation from the historic range of variability found in relatively undisturbed watersheds in pH, dissolved oxygen, levels of chemicals (electrical conductivity), sedimentation, nutrients or temperature change.

**Process Benchmark 2.3.1:** The Maine Forest Service, Department of Environmental Protection and other partners should identify by 2000 a means to establish a statewide water quality monitoring system that can measure these parameters and quantify this indicator.

**Process Benchmark 2.3.2:** The agencies charged with developing such a statewide water quality monitoring system should identify the current conditions and trends in the referenced water quality parameters and recommend interim/provisional benchmark(s) by 2003, and final benchmarks defining desired future conditions by 2005.

**Proxy Indicator 2.3.a:** Number of and stream miles affected by water quality law violations attributed to forest management operations.

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<sup>18</sup>St. Peter, T. 1996. Memo to Forestry Advisory Team, 19 August 1996. 47 percent of BMPs rated at "C" or above. The method of aggregating a rating of effective utilization may change, so the current rating serves only as a rough indicator of the situation in 1995; however, the need for improvement was clearly demonstrated.

<sup>19</sup>Briggs, R.D., Kimball, A.J., and Cormier, J. 1996. op. cit.

**Proxy Benchmark 2.3.a.1:** The number of water quality law violations attributed to forest management operations will show a continuous decline, relative to enforcement effort, from the 1992-96 average of 50 per year.<sup>20</sup>

**Rationale:** Monitoring these water quality parameters over large areas of forest land can provide an initial indication of the impact of activities within or outside such areas on ecosystem health. It may indicate the extent to which forest management affects water quality; however, it is difficult to isolate the impacts of different land use activities when they occur within the same general area.

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**Indicator 2.4:** Percent of mapped, perennial first and larger order stream kilometers with acceptable levels of large woody debris and snags within riparian zones.

**Process Benchmark 2.4.1:** The Maine Forest Service and the technical advisory group charged with developing forest sustainability benchmarks for biological diversity should identify a range of acceptable levels of large woody debris and snags that should be retained within riparian zones by 2002.

**Process Benchmark 2.4.2:** The Maine Forest Service should develop a methodology to measure this indicator using forest inventory data coupled with digital hydrological data by 2004.

**Rationale:** This indicator provides a measure of the extent to which riparian zones are managed to account for essential stream functions and processes, including the provision of nutrients and substrate for in-stream biological activity, control and routing of water and sediment, and habitat features.

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**Indicator 2.5:** Percent of stream kilometers in forested watersheds in which stream flow and timing has significantly deviated from the historic range of variability found in relatively undisturbed watersheds.

**Process Benchmark 2.5.1:** The agencies charged with developing a statewide water quality monitoring system should assemble existing data sets, identify the current conditions and trends in this indicator and recommend interim/provisional benchmark(s) by 2003, and final benchmarks defining desired future conditions by 2005.

**Proxy Indicator 2.5.a:** Percent of stream-flow gauging stations in forested watersheds in which a statistically determinable trend in stream flow and timing can be determined.

**Rationale:** This may indicate the extent to which water supply conditions are affected by forest management. Some historical data are available for larger, main stem rivers; however, data appears to be lacking for many lower order streams.

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<sup>20</sup>Michael Mullen and William Galbraith, 1997, personal communications.

## **ATTACHMENT 2: POTENTIAL FUNDING SOURCES - ABBREVIATIONS**

This attachment explains the following abbreviations used to reference potential funding sources in the tables (Part Three, III.A. (Phase I) outlining the State's implementation plans for 2000-2004:

- "319" refers to Section 319 of the federal Clean Water Act;
- "6217" refers to Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990;
- "CZMA" refers to Section 306 of the federal Coastal Zone Management Act, the primary funding source for federally approved state coastal zone management programs;
- "EPA grant" refers to grant funding received by the Maine State Planning Office to prepare the Maine Wetlands Conservation Plan;
- "GF" refers to the State's General Fund, as opposed to a dedicated account;
- "OG" or "ON-GOING" refers to activities that the State intends to conduct throughout the fifteen year planning period; and
- "State Bond" refers to a general obligation bond issued by the State of Maine.
- "SRF" refers to Clean Water State Revolving Loan Fund