

State of Maine

**Department of
Environmental Protection**



Kennebunk River, Maine

**2008 Integrated Water Quality
Monitoring and Assessment Report**

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Table of Contents

Chapter 1 Preface.....	9
Data Sources and Acknowledgements	10
Sources of River and Stream Assessment Data.....	10
Sources of Lake Assessment Data	10
Sources of Marine Assessment Data.....	11
Sources of Wetlands Assessment Data.....	11
Chapter 2 Executive Summary and Response to Comments	12
Executive Summary	12
Surface Waters.....	12
Wetlands	14
Ground Water.....	14
Response to Comments	16
Process to Solicit Public Comments	16
Summary of Public Comments and Responses	19
Chapter 3 Background	28
State Atlas and Water Quality Standards	28
Water Quality Standards Program	31
Highlights for Point Source Pollution Control Programs.....	31
Technical Assistance / Pollution Prevention Program	31
Construction of Wastewater Treatment Facilities	32
Maine Combined Sewer Overflow Program.....	32
Small Community Facilities Program	33
Licensing of Wastewater Discharges	34
Overboard Discharge Grant Program	34
Compliance Evaluation.....	36
Enforcement of Water Quality Laws.....	37
Nature & Extent of Nonpoint Sources of Pollutants and Program	
Recommendations	37
The Maine NPS Water Pollution Control Program.....	37
Coastal Nonpoint Source Priority Watersheds.....	38
Watershed Management for Stormwater Programs	39
Land Use and Growth Management	40
Education and Outreach	41
The Environmental Impact and Economic & Social Costs/Benefits of	
Effective Water Quality Programs	42
Nonpoint Source Management	42
Economic Contribution of Maine Great Ponds.....	43
The Pollution Prevention (P2) Program	43
Chapter 4 Surface Water Monitoring & Assessments	45
Assessment Methodology	45
Listing Methodology for the 2008 305b / 303d Integrated Report List.....	45
Assessment Criteria	50
Rivers and Streams.....	50
Lakes and Ponds.....	51
Estuarine and Marine Waters.....	51
Data Interpretation.....	52
Integrated Report Lists of Categories 1 Through 5	54
Rivers / Streams	59
Water Classification Program.....	59
Summary of Statewide River and Stream Attainment Status	61
Main Stems of Major Rivers	64
Toxics	64

Aquatic Life Monitoring.....	64
Reports of Fish Kills	65
Achieving Comprehensive Assessment of All Streams: Probability-based Design Monitoring	65
Lakes / Ponds	65
Attainment of Classification.....	66
Invasive Aquatic Plants	70
Estuaries / Ocean	70
Background	71
Sources of Monitoring Data.....	72
Summary of Statewide Status.....	73
Protection of Marine Life (Designated use: Habitat for fish and estuarine / marine life).....	75
Casco Bay Estuary Partnership	75
Chapter 5 Wetlands	77
Background.....	77
Federal Regulation.....	77
Wetlands Regulatory Program in Maine's Organized Towns	77
Wetlands Regulatory Program in Unorganized Territories	78
Development of Wetland Water Quality Standards.....	78
Integrity of Wetland Resources.....	79
Wetland Monitoring and Assessment.....	79
Extent of Wetland Resources	80
Wetland Loss Tracking in Maine's Organized Towns.....	80
Wetland Loss Tracking in Maine's Unorganized Territories.....	82
Chapter 6 Groundwater Monitoring & Assessments	83
Overview	83
Background.....	83
Assessment of Ground Water Quality.....	84
Aquifer Characterization Activities	84
Overview of Ground Water Contamination Sources	84
Petroleum Storage Tanks and Product Spills	85
Underground Tanks.....	85
Above Ground Storage Tanks.....	86
Oil or Hazardous Materials Spills.....	87
Agriculture	88
Maine's Nutrient Management Law.....	88
Pesticides	88
Landfills.....	89
Active Landfills	89
Inactive Landfills.....	89
Road Salt	91
Federal Facilities, Superfund and Hazardous Substance Sites.....	91
Resource Conservation and Recovery Act (RCRA) Sites.....	92
Septic Systems	93
Nitrates and Septic Systems	93
Bacteria	93
Shallow Well Injection and the Underground Injection Control (UIC) Program	94
Other Programs	94
Stormwater Infiltration	95
Salt-Water Intrusion.....	95
Metallic Mining.....	95

Gravel Pits	95
Radioactive Waste Storage and Disposal Sites.....	95
Summary of Ground Water Quality	96
Groundwater Trends	100
Chapter 7 Public Health – Related Assessments	100
Beach Program Monitoring & Assessments.....	100
Maine Healthy Beaches Program	100
Swimming Beach Closures	102
Shellfish Program Monitoring & Assessments	104
Shellfish Harvest Area Closures	104
Toxic Algae (Red Tide)	105
Ocean Fish and Shellfish Consumption Advisories	105
Advisory Overview.....	106
Specific Ocean Fish Consumption Advisories	106
Freshwater Fish Consumption Monitoring, Assessments and Advisories	107
Mercury Statewide Fish Consumption Advisory	107
Dioxin	107
River and Stream Specific Fish Consumption Advisories.....	108
Ground Water and Public Health Concerns	110
Public Health and Environmental Concerns	110
Drinking Water Programs and Groundwater Contaminant Assessments.....	110
MTBE	112
Radon.....	113
Arsenic	113
Chapter 8 Summary of Impaired Waters.....	115
Chapter 9 Accessing and Managing Data Used in Making Decisions on Status of Waters	146
Maine DEP Quality Management System.....	146
Environmental and Geographic Analysis Database (EGAD)	146
Listings on Individual Waters	147

Index of Figures

Figure 4-1 Percentage of Estuarine and Marine Waters in Each Classification .	72
Figure 6-1 Active and Inactive Landfills in Maine	90
Figure 6-2 Distribution of Sole Source Public Water Supply Wells for the Ambient Water Quality Monitoring Network by Aquifer Type. Wells shown are those which were sampled.....	96
Figure 6-3 Ambient Water Quality Monitoring Network Well Location Map.....	97

Index of Tables

Table 2-1 Summary of Changes to Surface Water Assessment Categories – 2006 to 2008	13
Table 3-1 The 2008 305(b) Report State of Maine Atlas.....	29
Table 3-2 CSO Program Summary Statistics.....	33
Table 3-3 Yearly Summary of SCGP Activities	34
Table 3-4 Shellfish Areas Opened from 1991 to 2007	35
Table 3-5 Section 319(h) Clean Water Act Grant Awards to Maine	43
Table 4-1 Maine Designated Uses and Criteria for Rivers and Streams.....	50
Table 4-2 Maine Designated Uses and Criteria for Lakes and Ponds.....	51
Table 4-3 Maine Designated Uses and Criteria for Estuarine and Marine Waters	51
Table 4-4 Lake Trophic State Parameters and Guidelines	52
Table 4-5 Summary of State Waters Attaining and Not Attaining Standards	54
Table 4-6 Individual Use Support Summary for Maine Rivers and Streams *	54
Table 4-7 Individual Designated Use Support Summary for Maine Lakes	55
Table 4-8 Individual Designated Use Support Summary for Estuarine and Marine Waters	55
Table 4-9 Total Sizes of Category 4 and 5 Impaired Rivers and Streams by Listing Causes/Stressors *	56
Table 4-10 Total Sizes of Category 4 and 5 Lakes Impaired by Listing Causes/Stressors (total acreage).....	56
Table 4-11 Total Sizes of Category 4 and 5 Lakes Impaired by Listing Causes/Stressors (by Category)	57
Table 4-12 Total Sizes of Category 4 and 5 Impaired Estuarine and Marine Waters by Causes/Stressors.....	57
Table 4-13 Total Sizes of Category 4 and 5 Waters Impaired by Source for Rivers and Streams	57
Table 4-14 Total Sizes of Waters Impaired by Sources for Maine Lakes.....	58
Table 4-15 Total Sizes of Waters Impaired by Sources for Maine Lakes by Listing Category	58
Table 4-16 Total Sizes of Waters Impaired by Sources for Estuarine and Marine Waters	59
Table 4-17 Maine Water Quality Criteria for Classification of Fresh Surface Waters (38 MRSA §465).....	60
Table 4-18 Percent Distribution of River/Stream Water Classes	60
Table 4-19 Summary of Changes to Surface Water Assessment Categories – 2006 to 2008	61
Table 4-20 "All" and "Significant" Lake Category Information	66
Table 4-21 Summary of Listing Categories and Subcategories used in the 2008 Assessment of Maine lakes.	66
Table 4-22 Individual Use Support Summary for Lakes & Ponds (acres) in Category 5a (TMDL Needed).....	68
Table 4-23 Trophic Status of Maine Lakes	69
Table 4-24 Lake Rehabilitation Technique Summary (Section 319 Projects)	69
Table 4-25 Acid Effects on Maine Lakes.....	69

Table 4-26 General Sources of Acidity in Acidic Maine Lakes	70
Table 4-27 Maine’s Estuarine and Coastal Waters Classification Standards.....	71
Table 4-28 Area and Percentage of Marine and Estuarine Waters in Each Classification.....	71
Table 5-1 Wetland Mitigation Totals in the Organized Townships	80
Table 5-2 Permitted Wetland Mitigation Totals in the Organized Townships	81
Table 6-1 LUST Remediation Priority Sites – Number of Sites as of Feb 2008 ..	85
Table 6-2 Current (February 2008) LUST Remediation Priority Sites – Contamination Summary	85
Table 6-3 Oil and Hazardous Materials Spills – January 2006 to December 2006	87
Table 6-4 Hexazinone Monitoring - 1994 through 2006	89
Table 6-5 Numer of sites in various Division of Remediation programs.....	91
Table 6-6 Nitrate-N Frequency Distributions	93
Table 6-7 Wells testing positive for E. coli or total coliform	94
Table 6-8 Underground Injection Control Program Information	94
Table 6-9 Ambient Aquifer Monitoring Data*	98
Table 7-1 Beaches Participating in the MHBP	101
Table 7-2 2006 Beach Closure or Advisory Information	103
Table 7-3 2007 Beach Closure or Advisory Information	103
Table 7-4 Classification of Shellfish Harvesting Areas.....	104
Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. <i>Bold text indicates listing changes for the 2008 cycle.</i>	115
Table 8-2 Status of Category 5a / TMDL Lakes: 2000 through 2008 ¹	123
Table 8-3 2004 Category 5/TMDL Estuarine/Marine Waters not on 2006 Category 5/TMDL List	125
Table 8-4 Causes of River and Stream impairment for which a Total Maximum Daily Load Report (TMDL) must be (or has been) prepared.....	126
Table 8-5 Lake TMDL Current Project Update.....	145
Table 8-6 Estuarine/Marine Current TMDL Project Update	145

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Sincerely,

Marianne DuBois and Susan Davies

CHAPTER 1 PREFACE

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The following report is submitted to simultaneously fulfill requirements of the Clean Water Act (CWA) particularly the Section 305(b) Report, Section 303(d) List, and information requested under Section 314, and, also to serve as a biennial report to the Maine Legislature as required under 38 MRSA Section 464.3.A. The Maine Department of Environmental Protection (The Department or MDEP) assembles these reports with input from many sources and recognizes that the Section 305(b) Report and Section 303(d) List are important ways of regularly communicating information on the health, current status and trends of the State's waters.

For the 2008 Integrated Report the Department has updated tabular summaries of water quality status (Appendices; Chapter 4 and Chapter 8) that appeared in the 2006 Integrated Report but reduced narrative content. Programmatic descriptions and summaries are greatly reduced unless a major programmatic change has occurred since the 2006 Integrated Report. For background information about specific water quality programs please refer to the 2006 Integrated Water Quality Report, available on the web at:

<http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm>

Maine waterbodies are assigned to one of five categories (or sub-categories) that describe water quality status in the Integrated Report (Executive Summary, page 10 and Ch 4). Those waters that are currently listed under category 5 represent U.S. Clean Water Act (CWA) §303d list "impaired waters" and require development and submission of Total Maximum Daily Load (TMDL) report to the United States Environmental Protection Agency.

The 2008 Integrated Report provides:

- Delineation of water quality assessment units (AUs), identified by their 10-digit HUC (Hydrologic Unit Code) followed by a waterbody-specific code (Appendices II-IV);
- Water quality attainment status for every Assessment Unit (Appendices II-IV);
- Progress toward achieving comprehensive assessment of all waters (Chapter 4),
- Basis for the water quality standard attainment determinations for each Assessment Unit (Chapter 4 and Appendices);
- Schedules for additional monitoring planned for certain Assessment Units (Appendices II-IV);
- Identification of Assessment Units requiring Total Maximum Daily Load (TMDL) determinations and a schedule (priority) for those waters (Chapter 8 and Appendices II-IV);

The 2008 Integrated Report presents State of Maine water quality assessment summaries for rivers, streams and lakes that have been generated by the Assessment Database (ADB). ADB is public domain software developed by EPA to improve states' ability to track and document water quality assessment results. Though marine assessment data and information is not currently stored in Maine's

ADB assessment results are reported in the 2008 Appendices, as in previous versions of the Integrated Report.

Data Sources and Acknowledgements

SOURCES OF RIVER AND STREAM ASSESSMENT DATA

The Department generates much of the data for the assessment through the various monitoring programs it conducts, notably the Biomonitoring Program, Surface Water Ambient Toxics Monitoring Program, the Dioxin Monitoring Program, and the Atlantic Salmon Recovery Plan. Additionally, data is provided from a variety of professional and volunteer monitoring groups. These include other state agencies and resources (Department of Inland Fisheries and Wildlife, Atlantic Salmon Commission, Department of Health and Human Services, University of Maine System), federal agencies (U.S. Environmental Protection Agency, U.S. Geological Survey, National Park Service), other governmental agencies (Saco River Corridor Commission, St. Croix International Waterway Commission), tribes (Penobscot Indian Nation, Houlton Band of Maliseets) and a number of volunteer watershed groups / conservation organizations that are working cooperatively with Department staff and that follow an EPA approved Quality Assurance Project Plan or that follow monitoring practices specifically approved by MDEP (Watershed councils of the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap and Sheepscot Rivers, Presumpscot River Watch, Royal River Conservation Trust, Sheepscot Valley Conservation Association, The Nature Conservancy).

SOURCES OF LAKE ASSESSMENT DATA

The Department's Lake Assessment Section manages much of the data collected from lakes within the state. A strong partnership with the Maine Volunteer Lakes Monitoring Program (VLMP, Inc.) assures the quality and comparability of the data collected through numerous regional entities and local lake associations. Regional entities include Cobbossee Watershed District, Lakes Environmental Association, St. Croix International Waterway Commission, Allagash Wilderness Waterway, Penobscot Indian Nation, Portland Water District, Auburn Water District, Acadia National Park, and Rangeley Lakes Heritage Trust. Data has also been acquired from private consultants (such as Lake and Watershed Resource Management Assoc., Biodiversity Research Institute, Florida Power and Light as part of regulatory requirements) and water utilities that belong to the Maine Water Utility Association. Additional data is acquired through the Maine Department of Inland Fisheries & Wildlife (DIF&W) and through cooperative projects with the University of Maine System, Colby College, Unity College, Soil and Water Conservation Districts and similar entities. Future lake assessments will include evaluation of data collected under probability based studies conducted within EPA Region I and as part of the National Lake Assessment Study being conducted by EPA Headquarters.

SOURCES OF MARINE ASSESSMENT DATA

The Maine Department of Environmental Protection, the Department of Marine Resources (DMR), the Casco Bay Estuary Project (CBEP) and a variety of volunteer monitoring groups monitor Maine's coastal waters. DMR monitors for indicators of human pathogens (fecal coliforms) and biotoxins (Paralytic Shellfish Poisoning). The purpose of the DMR monitoring is to protect human health by managing shellfish harvest areas. DEP monitors toxic contaminants in tissues and assesses water quality using data collected by DEP, especially the Surface Water Ambient Toxics program, and others. DEP participates in the Gulf of Maine Council's Gulfwatch Project that surveys toxic contamination in mussel tissue in the Gulf of Maine. Friends of Casco Bay monitors water quality in Casco Bay. The Casco Bay Estuary Project (CBEP), funded by EPA's National Estuary Program, also monitors and supports monitoring in Casco Bay and coordinates the National Coastal Assessment for the entire Maine coast.

SOURCES OF WETLANDS ASSESSMENT DATA

The Department generates most of its assessment data for wetlands through the Biological Monitoring Program (see Chapter 5 for additional information). Wetland biomonitoring is coordinated with the State's river and stream biomonitoring program using a 5-year rotating basin schedule. Although DEP does not currently report attainment status for wetlands, the Biomonitoring Program is working to clarify how existing water quality standards apply to wetlands, and is also developing wetland-specific biological criteria. This will enable the Department to report wetland attainment status in future years. Data for permitted wetland gains and losses is provided through the DEP Wetland Loss Tracking System by the Division of Land Resource Regulation.

CHAPTER 2 EXECUTIVE SUMMARY AND RESPONSE TO COMMENTS

Executive Summary

SURFACE WATERS

This report continues to base assessments of streams & rivers, lakes & ponds, and marine & estuarine waters on the five main listing categories that were initially established for these waters in the 2002 305b Report. These five main assessment categories are as follows:

Category 1: Attaining all designated uses and water quality standards, and no use is threatened.

Category 2: Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).

Category 3: Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).

Category 4: Impaired or threatened for one or more designated uses, but does not require development of a TMDL (Total Maximum Daily Load) report.

Category 5: Waters impaired or threatened for one or more designated uses by a pollutant(s), and a TMDL report is required.

Section 4-1 on Assessment Methodology contains more detailed information on the listing categories and sub-categories.

The results from the 2002 through 2008 Integrated Reports are not exactly comparable but they can give an idea of changes in the approximate amounts of waters in each category. This information is displayed in Table 2-1.

Table 2-1 indicates that there has been little change since the close of the last reporting period for rivers and streams. An error was corrected in reach length for a mainstem river segment so Total Miles Assessed has decreased since the 2006 report. Small increases in Category 2 waters occurred due to new data that confirmed that certain segments are now attaining some uses. Confirmed attainment of standards or Completion of Total Maximum Daily Loads caused a decrease in 17 miles of Category 5 with an increase in Category 2 and 4 rivers and streams. This table also reveals that the lakes and ponds of Maine were relatively stable (as a percent of total assessed waters) with respect to their listing categories during the 2006 to 2008 time frame. This period saw reductions in categories 3 and 5a and an increase in category 2 and 4a waters.

For marine and estuarine waters the 2008 Report relies on the same assessment data as that used to report on status in 2006.

Table 2-1 Summary of Changes to Surface Water Assessment Categories – 2006 to 2008

Note: These figures do not include waters listed under Category 4A for atmospheric deposition of mercury

Rivers and Streams						
31,224= Total Miles Assessed in 2006						
31,218=Total Miles Assessed in 2008						
	2006 Miles in Category*	% of Total 2006 Assessed Miles	2008 Miles in Category**	% of Total 2006 Assessed Miles	% Change '06-'08	Change in Miles '06 - '08
Category 1	4,347	14	4,347	14	0	0
Category 2	25,283	81	25,288	81	0	+5
Category 3	380	1	379	1	0	-1
Category 4	209	<1	216	<1	0	+7
Category 5	1005	3	988	3	0	-17
Lakes						
986,952 = Total Acres Assessed in 2006						
986,508 = Total Acres Assessed in 2008						
	2006 Acres in Category	% of Total 2006 Assessed Acres	2008 Acres in Category	% of Total 2006 Assessed Acres	% Change '06-'04	Change in Acres '08-'06
Category 1	295,443	29.9	295,443	29.9	0	0
Category 2 *	596,087	60.4	596,474	60.5		387
Category 3	18,164	1.8	17,777	1.8		-387
Category 4	72,288	7.3	73,600	7.5		1,312
Category 5	4,970	0.5	3,658	0.4		-1,312
Marine Waters (Acres)						
1,821,433.6 = Total Acres Assessed in 2006						
1,821,433.6 = Total Acres Assessed in 2008						
	2006 Acres in Category	% of Total 2006 Assessed Acres	2008 Acres in Category	% of Total 2008 Assessed Acres	% Change '06 - '08	Change in Acres '06 - '08
Category 1	0.00	0.00	0.00	0.00	0.00	0.00
Category 2	1,722,079.30	94.55	1,718,509.09	94.35	-0.20	-3,570.21
Category 3	3,986.00	0.22	2,835.00	0.16	-0.06	-1,151.00
Category 4	697.00	0.04	0.00	0.00	-0.04	-697.00
Category 5	94,671.30	5.20	100,089.50	5.50	0.30	5,418.20
Marine Waters (Square Miles)						
2,846.0 = Total Square Miles Assessed in 2006						
2,846.0 = Total Square Miles Assessed in 2008						
	2006 Square Miles in Category	% of Total 2006 Assessed Square Miles	2008 Square Miles in Category	% of Total 2008 Assessed Square Miles	% Change '06 - '08	Change in Square Miles '06 - '08
Category 1	0.00	0.00	0.00	0.00	0.00	0.00
Category 2	2,690.75	94.55	2685.17	94.35	-0.20	-5.58
Category 3	6.23	0.22	4.43	0.16	-0.06	-1.80
Category 4	1.09	0.04	0.00	0.00	-0.04	-1.09
Category 5	147.92	5.20	156.39	5.50	0.30	8.47

*Single-Category Reporting miles as generated by final 2006 cycle ADB

** Single-Category Reporting miles as generated by final 2008 cycle ADB

Since the 2004 Integrated Water Quality Report, waters that are listed in non-attainment, caused solely by bacteria either from Combined Sewer Overflows (CSOs) or other sources, are in Sub-Category 5B. The DEP deems that the CSO Master Plans and associated enforcement controls provide fully adequate mechanisms for control of this cause of bacterial impairment and thus they are a low priority for Total Maximum Daily Load (TMDL) development. All freshwaters in Maine are listed for an impaired Fish Consumption Use caused by mercury from sources beyond the region;

miles affected by this statewide listing are not recorded in Table 2-1. These waters were listed in Sub-Category 5C in the 2006 Integrated Report. These waters have now been moved to Category 4A because of US EPA's approval, on December 20, 2007, of a Regional Mercury Total Maximum Daily Load. The New England States and New York developed the regional mercury TMDL to address mercury impairments that are caused by sources beyond the Region. The State of Maine has already taken aggressive action to reduce sources of mercury within the State's jurisdiction. Further mercury reductions will be required from sources outside the State's boundaries to provide the desired reduction of mercury in Maine's waters. Category 5D, Legacy Pollutants, includes many mainstem river segments that are listed for non-attainment of the Fish Consumption use due to PCBs in fish tissue.

WETLANDS

Maine DEP began development of a biological monitoring and assessment program for freshwater wetlands in 1998 as part of the biomonitoring program. The Biological Monitoring Program provides water quality information for a wide array of programs, and includes ambient monitoring, evaluation of water quality classification attainment, and assessment of risks and impacts.

The wetlands initiative currently focuses on aquatic macroinvertebrates as indicators of wetland ecological integrity, and plans to build capacity to assess multiple biological assemblages including algae (needed for development of nutrient criteria) and plant communities. Key wetland related activities include (1) ambient monitoring and assessment of wetland condition, (2) development of biological criteria for wetlands, (3) inclusion of wetlands in comprehensive State water quality monitoring strategy, (4) development of Internet Mapping Project to provide public access to biomonitoring data, and (5) development of landscape-level assessment tool to predict threats to wetlands.

Starting September 1, 2007, *significant vernal pool habitat* is protected by law under the State of Maine Natural Resources Protection Act (NRPA). For more information, see Chapter 5, Wetlands or visit the DEP's NRPA page at:

www.maine.gov/dep/blwq/docstand/nrpapage.htm.

GROUND WATER

The Groundwater Program is described in chapter 6. Responsibility for ground water resource assessment and protection is shared among the Department of Environmental Protection, the Department of Health and Human Services' Division of Environmental Health, the Maine Geological Survey in the Department of Conservation and the U. S. Geological Survey. Several other agencies, particularly the Department of Transportation, Department of Agriculture, and State Planning Office may investigate ground water contamination problems in certain areas and they also contribute to ground water protection through development of ordinances and management practices that are designed to reduce the risk of harming ground water quality.

A significant portion of Maine's ground water may be threatened by contamination, particularly in unforested areas, which comprise approximately 11% of the State.

Drinking water quality is an issue that carries significant public concern for both private and public well supplies. Public interest in ground water is primarily focused on its use as a drinking water supply (ground water provides 60% of all human demand and 75% of livestock demand statewide) and on its use as a source of process water for industry. Numerous wells in Maine have been made unpotable by pollution from specific point sources and also from nonpoint source pollution. Important sources of ground water contamination in Maine include disposal activities such as septic systems and landfills, leaking storage facilities, agriculture, spilled hazardous materials or previously unregulated activities.

Monitoring of ground water in Maine is either site-specific or generalized. Monitoring at a particular site is typically done to gather data on water quality impacts of particular activities, and may or may not be research-related. Most of the ground water data collected in Maine is the result of permit conditions, enforcement agreements or impact assessments. With the advent of the Environmental Geographic Analysis Database (EGAD) at the DEP, many of these data which are potentially useful for research purposes are now readily made available to the public or other agencies in report or map form. This effort enhances the ability of the DEP to communicate and report groundwater and other data to the EPA and other state or federal agencies.

Ambient monitoring refers to large area, long-term monitoring conducted to obtain trend information on ground water quality or quantity. The MGS and the USGS carry out these types of monitoring projects under several cooperative agreements. The USGS and MGS maintain a statewide network of ground water observation wells to track changes in water quality and quantity. For the purpose of this report, data derived from the DHHS Public Water Supply Monitoring Program are used as ambient ground water quality data. These water tests are from single-source untreated public water supply wells.

Major impediments to effective ground water protection in Maine include; the lack of data to quantify the impact of some nonpoint pollution sources and general public unfamiliarity with key groundwater concepts and issues. Public misconception about groundwater is probably the major factor contributing to degradation of this resource. The development of a comprehensive and accessible database for water data (EGAD) has increased the accessibility of the wide variety of data collected on water quality by various state agencies. Continuing use of this database will improve operations at the agencies responsible for groundwater protection and assessment, and provide a resource for increasing the general public's awareness of groundwater issues. Relative to groundwater protection the principal uses of this database are to (1) help design clean-up strategies in areas of known contamination; (2) plan future development that better provides for protection of public health and safety; (3) assist in prioritizing protection of sensitive ground water and surface water bodies, wetlands, and other resources; (4) enhance understanding of the spatial relationships between water resources and population as they relate to potential or known pollution sources; and (5) assess the flow and transport interrelationships between surface and ground water quality, in order to evaluate groundwater impacts on surface water bodies and on groundwater-dependent habitat.

Response to Comments

PROCESS TO SOLICIT PUBLIC COMMENTS

The following subsections detail the actions taken by the Department of Environmental Protection to promote the public's knowledge of the existence and availability of the draft version of the 2008 Integrated Water Quality Monitoring and Assessment Report (commonly known as the 305b Report). This process was undertaken in order to gain comments from the public on the contents and conclusions of the draft report. The official period of time that the Report was available for public comment was from March 10, 2008 to the close of business on March 31, 2008.

In addition to the public comment process outlined below, the draft version of the 2008 305b Report was reviewed internally by Department staff as well as by US EPA staff in order to produce the final version of the Report.

REPORT POSTING ON THE DEPARTMENT'S WEBSITE:

On March 10, 2008 the Department posted the draft 2008 305b Report as two digital files in the Adobe® Portable Document Format (PDF) on the public comments section of its Bureau of Land and Water Quality website. Hardcopies of the draft report are made available to the public on request.

POSTAL MAILING TO THE AGENCY RULEMAKING SUBSCRIPTION SERVICE LIST:

The Department offers a subscription service that provides notification of both rulemaking changes and rule adoption for all department rules. Subscribers to this service include both individual citizens and representatives of organizations that wish to be contacted when the DEP releases rulemaking information. During the week of March 10, 2008 the Department mailed out approximately 150 letters to people and entities on the Agency Rulemaking Subscription Service List, including all other natural resource agencies within state government. The text of that letter follows and is italicized in order to differentiate it from other text contained in this Report.

Maine's 2008 Integrated Water Quality Monitoring and Assessment Report

Available for Public Comment until March 31, 2008

The Department of Environmental Protection has prepared a draft 2008 Integrated Water Quality Monitoring and Assessment Report for submission to the U.S. Environmental Protection Agency as required of Sections 305(b) and 303(d) of the Clean Water Act, and in fulfillment of the reporting requirements of 38 M.R.S.A. Section 464.3.A of the State of Maine's Water Classification Program.

This report is available for public comment until March 31, 2008. Reviewers of the document should pay particular attention to the categories and listing methods required by the USEPA for the surface water assessments in this report. These methods are described in Chapter 4. Specific surface waterbody attainment and impairment assignments can be found in the Appendices (a separate file). The appendices are broken into three waterbody types: rivers/streams, lakes, and estuarine/marine waters. Categories 1-3 are for waters that are not impaired, categories 4 and 5 are for water segments that are impaired for one or more uses.

The draft documents (pdf files) can be found on the Department's website at:
www.maine.gov/dep/blwq/docmonitoring/305b/draft.htm

We encourage you to review the document and provide comment on this year's report. Comments become part of the public record and are published in the final version of the Report. Comments should be sent to:

Email: 305b.Comments@maine.gov
Fax: 207-287-7826

Contact:
Susan Davies, Maine Department of Environmental Protection
State House #17
Augusta, ME 04333
susan.p.davies@maine.gov

LEGAL NOTICE:

During the week of March 10, 2008 the Department prepared a legal notice that ran in four daily newspapers located around the state. Those newspapers (and current weekday circulations) were as follows: The Bangor Daily News (62,730), The Kennebec Journal (14,877), The Lewiston Sun Journal (34,278), and The Portland Press Herald (75,577). The text of that legal notice follows and is italicized in order to differentiate it from other text contained in this Report.

Legal Notice

Maine Department of Environmental Protection

Notice of Public Comment for the "2008 Integrated Water Quality Monitoring and Assessment Report"

The Department of Environmental Protection has prepared the "2008 Integrated Water Quality Monitoring and Assessment Report" for submission to the U.S. Environmental Protection Agency as required of Sections 303(d) and 305(b) of the Clean Water Act, and in fulfillment of the reporting requirements of 38 M.R.S.A. Section 464.3.A of the State of Maine's Water Classification Program. This report is available for public comment until 5:00 PM, March 31, 2008. Reviewers of the document should pay particular attention to the listing methods required by the USEPA for surface water assessments for this report. These methods are described in Chapter 4 of the document. Specific waterbody attainment and impairment assignments can be found in the Appendices.

The report (pdf files) may be found on the Department's website at:
www.maine.gov/dep/blwq/docmonitoring/305b/draft.htm

Comments become part of the public record and are published in the final version of the Report. All comments should be sent to:
by fax: 207-287-7826
by email: 305b.Comments@maine.gov

Susan P. Davies
Maine Department of Environmental Protection

State House #17
Augusta, ME 04333

PRESS RELEASE:

On March 10, 2008 the Department of Environmental Protection issued a press release designed to inform the public of the availability of the draft 2008 305b Report. This release also described how the DEP was seeking public comment on water quality listings in the Report. Between fifteen and eighteen radio, television and print outlets around the state received the press release and it was also linked to a news headline on the Department's homepage. The release also went to the Associated Press, which places the release on its "wire" for other media outlets to run, if they so choose. The text of that press release follows and is italicized in order to differentiate it from other text contained in this Report.

DEP Seeks Comment on Water Quality

(AUGUSTA)—The Maine Department of Environmental Protection (DEP) wants feedback on its latest review of the health of Maine's lakes, streams, rivers, estuaries and coastal waters. Once the review receives final Environmental Protection Agency approval, the water quality ratings in the 2008 Integrated Water Quality Monitoring and Assessment Report help to determine planning and funding priorities for water quality improvements. The DEP is asking the public to comment on the draft report now posted on the web:

<http://www.maine.gov/dep/blwq/docmonitoring/305b/draft.htm>

Comments become part of the public record and are printed in the final version of the report. The comment deadline is 5:00 PM, March 31, 2008.

"Feedback from the public on the accuracy of our evaluations is important to this process", says Dr. David Courtemanch, director of the DEP's Division of Environmental Assessment. "These assessments drive decisions as to how particular public waters will be managed into the future, that's why we encourage citizens to review the ratings."

The report, also known as the "305b Report", a requirement of the federal Clean Water Act, is a water quality snapshot. Prepared every two years, the public can look back to see if and how the assessment of their favorite lake or stream has changed. One section lists waters considered to be "impaired" due to problems that affect one or more officially assigned "uses" of the waterbody, such as 'Recreation' or 'Fishing'.

"An 'impaired' listing can set into motion specific management activities designed to bring a water body back into full-use compliance," notes Courtemanch. "Those activities can range from more vigilant monitoring to complete abatement of a pollutant."

The 2008 Integrated Water Quality Monitoring and Assessment Report is based on information gathered by the DEP along with other state, federal, tribal, local agencies, non-government organizations and volunteer monitoring groups. DEP analyzes the data to assess the capacity of Maine waters to support drinking, fishing, recreation (such as swimming) and their ability to sustain aquatic life as defined in Maine's water classification laws. The report also provides extensive information on the status of Maine's groundwater and wetland resources.

SUMMARY OF PUBLIC COMMENTS AND RESPONSES

The Department received public comments from the parties listed below. Issues raised by comments from these organizations or individuals are either quoted or paraphrased and are presented in italic typeface. The DEP response to that comment follows the comment and summarizes any actions taken by the Department in response to the comment. If the text does not indicate that any changes were made to the Draft Integrated Report, then none were made.

POLLUTION IN THE PENOBSCOT RIVER

Paraphrased Comments from:

- Bernard Madden, resident of Millinocket, Maine

Stormwater runoff is a major water quality problem. I observe it during the spring runoff when Millinocket Stream turns brown. If an individual dumped this amount of pollution into one of Maine's rivers they would be arrested. Our government should take action to prevent stormwater from running off into our rivers. It eventually gets into the ocean and could disrupt the ecological balance there and jeopardize important human food supplies. The State's effort at Atlantic salmon restoration is inadequate. The Department should be more proactive and urge lawmakers to tighten the standards for municipal discharges.

MDEP Response:

MDEP agrees that stormwater is a major water quality problem. The Maine Stormwater Program within the Bureau of Land and Water Quality includes the regulation of stormwater under three core laws: The Site Location of Development law (Site Law), Stormwater Management Law, and Waste Discharge Law (MEPDES). Aspects of stormwater are also addressed under industry specific laws such as the borrow pit and solid waste laws, and the rules administered by the Land Use Regulation Commission. Detailed information about the array of MDEP programs designed to minimize the negative effects of stormwater runoff may be found at :

<http://www.maine.gov/dep/blwq/docstand/stormwater/>

Millinocket Stream is on the 303d list due to impairment of the primary and secondary contact recreation uses due to bacteria (3 miles) and stormwater runoff is a major contributing cause of the impairment. A Total Maximum Daily Load report is scheduled for 2008.

PLUM CREEK

Paraphrased Comments from:

- Mr. James Lavertu, lawyer practicing in Madawaska, Maine

I am concerned that southern Maine is opposing development in northern Maine; in particular I am concerned with the widespread southern Maine opposition to Plum Creek. Plum Creek and the extension of Interstate 95 through the northern tip of Maine could bring some measure of prosperity to the Millinocket area. MDEP should totally ignore anti-development attitudes when applied to Northern Maine, especially if they come from other parts of Maine.

MDEP Response:

MDEP reviews proposals and applications for development to ensure that all State and federal environmental laws and regulations are met and will continue to be met for any projects that go forward. MDEP does not take a position on development in northern Maine but rather reviews each application on its own merit. MDEP supports the public's right to appropriately express opinions during the Public Review Process.

Water Quality Concerns from Overboard Discharges (OBDs) in Sheepscot River, Cross Point to Route 1 Bridge, Edgecomb

Paraphrased Comments from:

- Byron Johnson, Edgecomb, Maine

1. *At the time of the latest report available to me (May 2007), there were 27 licensed overboard discharges (OBDs) in Edgecomb, of which 26 are on the Sheepscot (one mistakenly attributed to "Wiscasset Harbor") and one on the Cross River (understood from the owner be in the process of abatement). Clamming is prohibited in this portion of the Sheepscot (Pollution Closed Area 22 A.(1)) "because of pollution."*

Note: Commenter Johnson next inserted text from what he reported was a "typical OBD permit", including comments from the Department of Marine Resources noting closure of a shellfish harvesting area due to OBDs, and language from the Department of Environmental Protection that concludes:

"Under Maine's water classification standards, shellfish harvesting is a designated use of all estuarine and marine waters of the State. The presence of overboard discharges prevents this waterbody from meeting its designated use for shellfish harvesting.

C. Based on the preceding conclusions and in accordance with CMR 596, a waste discharge license cannot be issued. The Department must issue a conditional discharge permit when the renewal of an overboard discharge license is denied."

MDEP Response:

The Department's OBD Licensing and Removal Grant Programs exist because we agree with Mr. Johnson's basic premise. However, the cited permit language is outdated and predates *Overboard discharges: licenses and abandonment* 06-096 CMR 596(effective November 24, 2004) and the affected statutes. The current language is more comprehensive and the findings differ according to the results of the site evaluation, the water quality category at the location of the OBD, and the OBD inspection

compliance rating. Currently the Department is making both license and removal grant decisions based on the OBDs present in the given closure area, the feasibility of replacing the OBDs, the water quality category at that site and the potential to open shellfish areas.

From a water quality standards perspective, the closure is administrative-based and precautionary due to proximity to a wastewater outfall. MDEP does not have data documenting the presence of criteria violations. The purpose of the Integrated Report is to report water-quality based conditions and impairments. Regulatory policies and requirements that might prohibit an activity are not considered impairments (just as a closed fishing season does not mean a waterbody is impaired for the designated use of fishing).

2. On Davis Island there are 5 OBDs. Connections for water and sewer have recently been installed across the Sheepscot, from Wiscasset, eliminating the formerly largest OBD. Development including sanitary sewers has been started within 200 feet of the nearest site having an OBD (there are two more OBD sites within 300 feet of the first OBD site, and another at about 200 feet further). There are complaints of quantity and quality problems with water wells in the vicinity. The owners of three Davis Island OBD sites have a recorded agreement with the developer wherein he agrees to not allow utility connections via the shortest distance(!)

MDEP Response:

OBDs which pass more than 75% of the inspections in the previous five-year period may be licensed. The Department inspects these facilities twice yearly and will not relicense the OBD until a scheduled plan of compliance is submitted for any OBD which passes less than 75% of the inspections. MDEP shares Mr. Johnson's concern and is pursuing enforcement action against repeat violators, especially with regard to disinfection. A scheduled plan of compliance is required. The Department can only compel owners of facilities which abut a municipal sewer to connect. If the sewer is private, or there is a privately-owned parcel between the OBD facility and the sewer, and the facility owner holds no right, title or interest to that parcel, we cannot compel, but can only encourage people to gain the necessary easements to connect. The developer's side agreement may or may not have any legal standing depending on the above. The Department would need more information.

Regarding water well complaints, the Integrated Report does not assess and report on groundwater quality in the report except in a general way. While OBDs will not cause a quantity problem, the commenter provides insufficient information about the nature of the "wellwater quality" issues for the MDEP to make any comments.

3. *There are clusters of OBDs: Eddy Road/Clifford Road, Shore Road, and Cross Point Road. Additional OBDs are scattered. In one or more cases there is land in the same ownership that could be used for individual or collective on-land disposal (probably with pumping). Isolated sites might lend themselves to alternative black-water disposal systems (with little or no water added to the waste, reducing water consumption). [example: "EcoJohn" (www.ecojohn.com), perhaps more common in the states of Washington and Oregon]. I would urge that the annual inspection program consider changes in site context and "Best Practicable Treatment(s)" that would directly address factors preventing attainment of adopted water quality goals, particularly where permittees actively frustrate full compliance.*

MDEP Response:

The Department agrees. Since September 13, 2003, OBD owners have been required to hire a Licensed Site Evaluator (LSE) to determine whether there is a technologically feasible replacement for existing OBD systems, prior to transfer of the property or license renewal, if one has not been done in the five years previous. If the property is being transferred (sale, inheritance, gift, trust, etc.) the parties to the sale must install the replacement within 90 days [38 MRSA §413 (3)]. We will continue to renew licenses to the original licensees until such time as the Department offers grant money for the removal [38 MRSA §414-A(1-B)(A)]. Subsurface systems are subject to approval by the Dept of Health and Human Services' Division of Environmental Health pursuant to the Maine Subsurface Waste Water Disposal Rules, 10-144 CMR 241. They can allow alternative systems, but require that a full-system design be submitted concurrently. Most people will install the full system. OBD #w002323 in Edgecomb was removed last year pursuant to 38 MRSA §413 (3).

4. *If the water is not safe for clams I suspect it is not safe for human body contact!*

MDEP Response:

We agree, and we hold that this is why the DMR closure areas, the OBD licensing program, and the OBD removal grant programs exist. MDEP appreciates Mr. Johnson's concerns and his recognition of the importance of the OBD program. MDEP is requiring new site evaluations prior to license renewal and/or property transfer and expediting whatever removals the law and Department resources allows, in order to protect shellfishing and recreational uses, improve the water quality and reopen shellfishing areas.

5. *Your "Category 2: Estuarine and Marine Waters Attaining Some Designated Uses – Insufficient Information for Other Uses" comments on Waterbody ID 730-4 Sheepscot River (that there are) OBDs, detrimental to a designated use.*

The vast majority of OBDs are in either Category 2 or Category 5B-1 waters. Waterbody 730-4 is listed in Category 2 since data on all uses is incomplete, however for those uses measured it is in attainment. The

presence of the OBDs does not necessarily cause a violation of water quality standards. Category 5B-1 waters usually have other sources of bacteria besides OBDs including the presence of sewage treatment plants, boats, nonpoint source elevated fecals, etc. For example Wiscasset Wastewater Treatment Plant outfall (0.62 million gallons per day), the FPL outfalls, and the Wiscasset snowdump are all located in the vicinity of the Route #1 bridge, upriver from Edgecomb.

FISHING IN MAINE

Paraphrased Comments:

- Pam Letalien, Maine citizen

Maine people should be able to safely eat fish in Maine's lakes and rivers. Not long ago we were cautioned to only eat small amounts of wild-caught fish (due to contamination). It seems incompatible to be promoting Maine lakes as a great vacation spot when you can't eat the fish. We could ruin our reputation as vacationland.

MDEP Response:

MDEP agrees that contamination of fish tissue from human-generated toxicants is a serious problem. MDEP monitors lakes, rivers and streams and marine waters for evidence of toxic levels of contaminants in fish and shellfish tissue through the Surface Waters Ambient Toxics Program (SWAT) and through the Dioxin Monitoring Program and reports findings to the Legislature. This past year Maine has been part of a regional Total Maximum Daily Load analysis that has set targets for regional reduction of mercury. Maine has already implemented significant reductions in mercury sources, however, larger sources lie outside our boundaries and will be controlled through these regional strategies. This report also delists certain waters previously impaired by dioxin because of progress made in removing this contaminant from some industrial processes.

Detailed information about the SWAT Program may be found at:

<http://www.maine.gov/dep/blwq/docmonitoring/swat/>

Detailed information about the Dioxin Monitoring Program may be found at:

<http://www.maine.gov/dep/blwq/docmonitoring/dioxin/>

GENERAL RIVER AND STREAM WATER QUALITY

Paraphrased Comments:

- Joan Bowles, Benton, Maine

As a concerned citizen I would like to share that I feel the water quality is a very important investment in Maine. I live along the Kennebec and I personally do not concur that the quality is a B for a river. I would not swim, fish or have my dog drink the water. I hope that our water supply is one area that money is appropriated for.

MDEP Response:

Standards for both Class B and C are more stringent than Clean Water Act standards and are quite suitable for swimming and fishing. A portion of the Kennebec River between the Fairfield-Skowhegan boundary and the confluence with Messalonskee Stream is Class C (Benton area). Some of the Class B portions of the Kennebec do not attain all the standards of Class B, mostly due to bacteria from combined sewer overflows, and legacy effects of some pollutants (e.g. PCBs), but Class B has been deemed by MDEP and the Maine State Legislature to be an attainable goal condition for those sections. The MDEP is working to bring all sections of the river into compliance with its classification.

REPORT FORMAT AND LISTING CONCERNS

Paraphrased Comment:

- Nick Bennett, Natural Resources Council of Maine

1. *The Maine DEP Integrated Report is difficult to follow and not very useful to the public. MDEP should produce a simpler version of the report.*

MDEP Response:

We agree that the Integrated Report (IR) format is cumbersome and that a simpler version is desirable. MDEP follows the Integrated Report format established by the US EPA.

2. *MDEP incorrectly implies that the bleaching process used in Maine's kraft pulp mills "eliminates dioxin". This is untrue. Chlorine dioxide bleaching has been documented to leave significant residual and the process is not "chlorine-free". Residual chlorine produces dioxins and MDEP should not state that "Maine kraft mills have eliminated dioxin discharges".*

MDEP Response:

MDEP agrees that absolute elimination of the production of dioxin secondary to the bleaching process has probably not been accomplished and is impossible to measure. Results of DEP's Above/Below test documented (by 2004 for 4 of 5 bleached kraft pulp and paper mills, and by 2005 for the last mill) that there was no *measurable* difference in dioxin concentrations in fish above and below each mill. If a small unmeasurable discharge is still occurring, it is not significant with respect to bioaccumulation in fish compared to the MCDC's Fish Tissue Action Level. We have modified the language to reflect the finding that there is no *measurable* discharge.

3. *The "above/below" test is fatally flawed as described in detail in the January 13, 2005 letter to Commissioner Dawn Gallagher from members of the Surface Water Ambient Toxics Technical Advisory Group). It is untrue that "new sources of dioxin have been removed.*

MDEP Response:

MDEP disagrees that the above/below test is fatally flawed. While it is not as precise as NRCM may prefer, it provides a reasonable test with

statistical confidence as required in the dioxin law and within the resources of the Department to conduct. Methods and results of the test are reviewed and approved by a technical advisory committee. Despite the arguments made in the January 13, 2005 letter, MDEP holds that the mills would have passed the Above/Below test within a year, even if the test had been as suggested in the letter.

4. *The “Expected to Attain” date of 2020, by rivers are supposed to be free of dioxin, has no basis.*

MDEP Response:

MDEP agrees that the date of 2020 by which certain segments will be free from dioxin” does not have a scientific basis. US EPA requires that MDEP provide an “Expected to attain” date for all Category 4B listings. The date of 2020 represents MDEP’s best estimate of when certain segments will be free from dioxin. Based on past experience with toxics monitoring, and in the absence of scientific data on fish tissue recovery rates for various species of fish in Maine, 2020 represents a time beyond the next several 303d reporting cycles, and MDEP does not judge that these segments will be free of dioxin before that date. Monitoring and assessment of dioxin levels will continue.

5. *The Category 2 listing for the Androscoggin River at Livermore Falls is confusing. Why is that impoundment not listed for algae blooms in the same way that Gulf Island Pond is listed?*

MDEP Response:

There is no documentation of any algae blooms in the Livermore Falls impoundment. This segment was listed for non-attainment of aquatic life and it now attains applicable aquatic life uses of Class C.

6. *The Penobscot River listing is confusing. Why does MDEP state that more monitoring data is needed when the river is obviously not attaining for dissolved oxygen and nutrients?*

MDEP Response:

MDEP agrees that certain Penobscot River segments are impaired and they are listed in Category 5A for non-attainment of aquatic life uses due to dissolved oxygen and excess nutrients. Additional monitoring data is needed to determine the best restoration actions to address the impairments.

7. *Why is the TMDL completion date for the Penobscot River 2009? Why is MDEP waiting until 2009 to complete the TMDL?*

MDEP Response:

The TMDL is currently in progress. 2009 is a reasonable target completion date; though it is possible it will be completed prior to 2009.

ACIDIFICATION OF MARINE WATERS

- Center for Biological Diversity, San Francisco, CA

Paraphrased comment:

Maine should include all of its marine waters on the 303(d) List of Impaired waters (Category 5) as a result of past, ongoing and projected absorption of anthropogenic carbon dioxide pollution. Maine's pH standard is inadequate to protect life in marine waters.

MDEP Response:

The Maine DEP disagrees that a listing of its marine waters as impaired for pH due to ocean acidification is appropriate at this time. The evidence for ocean acidification does not fall within the State's listing methodology or indicate factual impairment of Maine's water quality standards has occurred, or that Maine's marine waters are threatened with an impairment within the listing cycle. While the Maine DEP agrees that ocean acidification is an issue of growing long-term and global concern, and something to be followed in years ahead, a listing according to CWA 303(d) would not be appropriate for the following reasons:

- There has been no detected impairment of any designated use or characteristic of any classified coastal water in Maine's jurisdiction due to pH. CBD provides no documentation of impairment for Maine waters.
- While an inference of water quality change might be used to determine our waters are "threatened", there is no evidence presented that any impairment will occur within the next 2 year listing cycle. The rate of change shown from the literature would not cause a violation of Maine's pH criteria for many decades.
- Ocean acidification is an issue of global scope, however, information from one area cannot be readily extrapolated to another. The information provided by CBD comes from areas outside of Maine's jurisdictional waters, and mostly from areas quite remote from Maine. Following review of the extensive list of references provided by CBD, Maine DEP did not find any of the references refer to information collected in Maine, the Gulf of Maine, or northwestern Atlantic waters. While the mechanisms of ocean acidification may be similar, the effects in different ecosystems will vary. Nearshore waters may be less affected than offshore waters due to land export of buffering substances.
- A 303(d) listing is an inappropriate tool to manage the issue. 303(d) listings put a state on a course of developing TMDLs. Maine has neither the information, resources, nor jurisdictional authority to address the causes and sources attributed to ocean acidification
- The Maine DEP considers that a 303(d) listing could prevent the ocean acidification issue from gaining appropriate national/global attention by inferring that it is an issue of the coastal states that can be addressed through TMDLs. Even if this were the case, the result would be a patchwork of strategies of differing purpose, effect, and efficacy that could defeat the intent of reversing ocean acidification.

Maine's pH criteria for estuarine and marine waters (7.0-8.5) were established in the 1970s and have been approved by USEPA. This Integrated Report does not review adequacy of criteria. That process is left to the State's triennial review (38§464.2). If evidence is shown that Maine's pH standard is inadequate to protect designated uses and characteristics of its waters, the criteria would need to be changed in the statute.

TOTAL MAXIMUM DAILY LOAD (TMDL) REPORT TARGET DATES

Paraphrased Comment:

- MDEP Internal Staff comments

Several dates in the posted Draft 2008 Integrated Report Appendices should be changed to more accurately reflect the likely completion date.

MDEP Response:

Sixteen TMDL target dates in were changed in the Appendix for River and Stream Category 5A in response to staff recommendations.

CHAPTER 3 BACKGROUND

State Atlas and Water Quality Standards

Contact: Vicki Schmidt, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 287-3901

email: vicki.l.schmidt@SPAM-ZAPmaine.gov

The State of Maine 2008 Atlas has not been revised since the 2006 Integrated Report. Please refer to the 2006 Report for background information on methods used to compile the State of Maine Water Atlas.

<http://www.maine.gov/dep/blwq/docmonitoring/305b/index.htm>

The State of Maine has a total surface area of over 35,000 square miles, the most in New England; with dry land occupying almost 31,000 square miles and the larger surface waters occupying about 4,500 square miles. With a population of about 1.3 million people, Maine also is the least densely populated state in New England. However, since most of the population is concentrated in the southern and coastal portions of the State and into bands on both sides of Interstate 95, regional population densities may vary considerably from the state's average population density.

Maine's 5,780 lakes and ponds cover 986,508 acres, an area that is somewhat larger than the State of Rhode Island. There are over 7,000 perennial brooks, streams and rivers in Maine, ranging in length from less than two miles to nearly 200 miles, with an estimated total length of 31,227 miles.

The current version of the Geographic Information System (GIS) boundary data layer indicates a value of 5,261 miles of coastline. As with many of the other data sets, this value differs slightly from earlier reports due to advances in GIS technology and reporting accuracy.

Although there are no definitive inventories of inland and coastal wetlands and marshes in Maine, this year's atlas estimated a total wetland area of almost 3,200,000 acres. This conservative estimate does not include over 7,500 known wetlands of less than 3 acres. Also noteworthy is that at least 1,281 square miles of the state are underlain by significant sand and gravel aquifers (up from 1,241 square miles as reported in 2004).

Table 3-1 The 2008 305(b) Report State of Maine Atlas; *Note- large difference in landcover values between 2004 and 2006 are due to use of different data summary methods as explained in footnote #4.*

Population or Natural Resource Category	Value Reported for 2006 ¹	Percent	Value Reported in 2004 ²
State Population (July 1, 2005 US Census Estimate)	1,321,505	100%	1,305,728
Total State Area (square miles) ³	35,236.4	100.0%	29,699.2 ⁴
Total Fields (square miles) ³	1,546.5	4.4%	2,297.9 ⁴
Blueberry Fields	100.9	0.3%	50.7 ⁴
Grassland / Herbaceous	57.9	0.2%	not reported
Pastureland / Hayland	644.8	1.8%	1,768.9 ⁴
Cultivated Crops	742.9	2.1%	405.5 ⁴
Total Forest (square miles) ³	24,666.9	70.0%	26,519.8 ⁴
Recent Clearcut	163.6	0.5%	448.7 ⁴
Regenerating Forest (Post 1995)	720.3	2.0%	3131.7 ⁴
Light Partial Cut (Post 1995)	2,285.1	6.5%	430.0 ⁴
Heavy Partial Cut (Post 1995)	1,199.9	3.4%	577.5 ⁴
Deciduous Forest	4,745.5	13.5%	5,326.9 ⁴
Mixed Forest	8,899.4	25.3%	11,923.6 ⁴
Evergreen Forest	6,653.0	18.9%	4,666.5 ⁴
Total Scrub-Shrub (square miles) ³	1,186.4	3.4%	725.4 ⁴
Total Wetlands (square miles) ³	2,376.9	6.7%	not reported
Wetlands	816.1	2.3%	806.3 ⁴
Forested Wetland	1,560.8	4.4%	not reported
Total Open Water Surface Area (square miles) ³	4,210.7	11.9%	4,123.0 ⁴
Total Saltwater Surface Area (square miles) ⁴	not reported	n/a	2,273.4 ⁴
Total Unconsolidated Earth-Material Shorelines (square miles) ³	225.3	0.6%	152.0 ⁴
Total Developed Lands and Paved Ways (square miles) ³	972.0	2.8%	404.4 ⁴
Developed - Open Space	175.1	0.5%	not reported
Developed - Low Intensity	169.1	0.5%	261.2 ⁴
Developed - Med Intensity	95.4	0.3%	134.5 ⁴
Developed - High Intensity	98.5	0.3%	5.7 ⁴
Road / Runway	433.9	1.2%	3.0 ⁴
Total Alpine / Tundra (square miles) ³	10.3	0.0%	8.0 ⁴
Total Bare Ground (square miles) ³	41.5	0.1%	17.2 ⁴
Total Miles of Coastline (including tidal rivers & shorelines of islands) ⁵	5261.0	100%	n/c
Total Miles of Border Coast, Lakes & Rivers Shared with CN and NH ⁵	338.9	100%	n/c
Maine – Canadian Border (coastal water miles out to the "3 mile" limit)	39.4	12%	n/c
Maine – Canadian Border (lake miles)	33.0	10%	n/c
Maine – Canadian Border (river miles)	206.2	61%	n/c
Maine – Canadian Border (total water miles) ⁵	278.6	82%	n/c
<i>Maine – Canadian Border (total land and water miles)</i>	608.7	N/A	n/c
Maine – New Hampshire Border (coastal water miles out to the "3 mile" limit)	17.3	5%	n/c
Maine – New Hampshire Border (lake miles)	17.7	5%	n/c

2008 Maine Integrated Water Quality Report

Maine – New Hampshire Border (river miles)	25.4	7%		n/c
Maine – New Hampshire Border (total water miles) ⁵	60.3	18%		n/c
<i>Maine – New Hampshire Border (total land and water miles)</i>	188.8	N/A		n/c
Total Miles of Rivers and Streams in Maine ⁵	45,176.8	100%		45,149.0
Miles of perennial streams (subset)	25,643.2	57%		25,617.1
Miles of intermittent [nonperennial] streams (subset)	13,463.0	30%		13,461.3
Miles of rivers (subset)	6,070.6	13%		6,070.6
Miles of Rivers and Streams by Water Class ⁵	Miles	Percent		
<i>Water Class Streams (% of Stream Miles) Rivers (% of River Miles)</i>	<i>Class Totals</i>	<i>n/a</i>		<i>n/a ⁷</i>
Class AA 1,664 4.26% 1,274 20.99%	2,938.0	6%		n/a ⁷
Class A 18,216 46.58% 2,540 41.85%	20,756.0	44%		n/a ⁷
Class B 19,093 48.82% 1,782 29.36%	20,875.0	48%		n/a ⁷
Class C 134 0.34% 474 7.81%	608.0	2%		n/a ⁷
Totals 39,486 100% 6,070 100%	45,177.0	100%		n/a ⁷
Number of Lake, Pond and Reservoir Features in DEP's GIS Datalayer ⁵	33,119	100%		33,114
Number of Above Waterbodies assigned a MIDAS ID Number (subset) ⁵	6,088	18%		6,082
Number of Significant Publicly Owned Waterbodies (subset) ⁵	2,314	7%		n/c
Total Areas of the Waterbodies Described Below:	Square Miles	Acres		
Lake, Pond & Reservoir Features the Maine DEP's GIS Datalayer ⁵	1,563.3	1,000,527.2		n/c
Lakes, Ponds & Reservoirs with an assigned MIDAS Number (subset; acreage from GIS) ⁵	1,518.6	971,885.6		n/c
Significant Publicly Owned Lakes, Ponds & Reservoirs (subset) ⁵	1,477.4	945,506.2		n/c
Total Area of Near Shore Waters and Tidal Rivers (square miles and acres) ⁵	2,846.1	1,821,473.9		n/c
Total Area of Bays, Estuaries and Harbors	2,717.3	1,739,051.0		n/c
Total Area of Tidal Rivers	128.8	82,422.9		n/c
Total Area of Near Shore Waters and Tidal Rivers by Water Class ⁵	Square Miles	Acres		
SeaClass A	211.0	135,009.0		n/c
SeaClass B	2,606.3	1,668,047.8		n/c
SeaClass C	28.8	18,417.1		n/c
Total Area of Wetlands ⁶	4,972.8	3,182,563.4		n/c
Total Area of Saltwater Wetlands ⁶	404.3	258,739.3		n/c
Estuarine	239.8	153,462.2		n/c
Marine	164.5	105,277.1		n/c
Total Area of Freshwater Wetlands ⁶	4,568.5	2,923,824.1		n/c
Lacustrine	1,466.6	938,621.7		n/c
Palustrine	2,954.0	1,890,553.6		n/c
Riverine	147.9	94,648.8		n/c
Total Area of Mapped Sand and Gravel Aquifers ⁵	1,281.0	794,624.0		1,241.6

¹ These figures were the most current that were available to the DEP in early 2006. And ². These figures were the most current available to the DEP in early 2004. The summary has not been updated for the 2008 Report.

³. Derived from the 2004 MeLCD (Maine LandCover Dataset) that has a 25 square meter (5m X 5m) spatial resolution.

⁴. Derived from the Maine GAP Landcover Analysis Dataset (based on the 1991 NLCD – National LandCover Dataset) that has a 900 square meter (30m X 30m) spatial resolution. Some categories were combined to allow a more direct comparison with figures derived from the 2004 MeLCD. 2006 report figures are derived from the higher resolution Maine Landcover Dataset (MELCD) 2004

⁵. Derived from MeDEP's GIS hydrography, geology and state boundary datasets (Source: Digitized 1:24,000 USGS 7.5" Quadrangles and Digital Raster Graphics). Significant Lakes are defined as publicly owned, have bathymetric/morphometric surveys, vulnerability modeling was performed or some trophic data has been gathered.

⁶. Derived from the National Wetland Inventory (NWI) dataset – based on polygons only, figures do not include a point dataset that indicates locations of small wetlands.

⁷. A draft dataset was used to generate figures for the 2004 report; this dataset underwent significant revisions, so as not to be comparable to data in the 2006 report.

WATER QUALITY STANDARDS PROGRAM

Contact: Susan P. Davies, DEP BLWQ, Division of Environmental Assessment (DEA)

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Related Website: www.maine.gov/dep/blwq/docmonitoring/classification/index.htm

The water quality of Maine is described in terms of physical, chemical and biological characteristics associated with the state's water classification program. As established in Maine statute (38 MRSA Sections 464-470), the classification program consists of designated uses (e.g. drinking water supply, recreation in and on the water, habitat for fish and other aquatic life), criteria (e.g. bacteria, dissolved oxygen and aquatic life), and characteristics (e.g. natural, free flowing) that specify levels of water quality necessary to maintain the designated uses. All State waters have a classification assignment (Lakes: GPA. Rivers and streams: AA, A, B, C. Marine and estuarine: SA, SB, SC).

The classification program is reviewed every three years by the Department and the Board of Environmental Protection (Board). The Department will initiate the next round of water classification reviews in 2008. The Board may, after opportunity for public review and hearing, make recommendations to the Legislature for changes in standards or reclassification of selected waters.

Highlights for Point Source Pollution Control Programs

Contact: Brian Kavanah, DEP BLWQ, Division of Water Quality Management (DWQM)

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Related Website: www.maine.gov/dep/blwq/docstand/wastepage.htm

Maine uses multiple approaches to ensure that point source discharges of wastewater receive adequate treatment prior to their release to waters of the State including: licensing, compliance inspections coupled with technical assistance in operations and maintenance, and enforcement where necessary. A number of financial assistance programs support new facility construction, elimination of discharges, as well as upgrades or additions to existing facilities. Highlights for 2006 - 2007 for these programs are summarized below or referenced by links to other documents.

TECHNICAL ASSISTANCE / POLLUTION PREVENTION PROGRAM

Contact: Sterling Pierce, DEP BLWQ, Division of Water Quality Management (DWQM)

Tel: (207) 287-4868 email: Sterling.Pierce@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/engin.htm

Department staffers participate in both industrial and municipal based technical assistance and pollution prevention projects.

Highlight for 2006-2007

Technical Assistance was provided to the operators of the St. Agatha wastewater treatment facility. The facility had violated permit limits for two straight months after the operator resigned. Department staff members visited the facility, helped the new operators diagnose the problems and recommended solutions which brought the facility back into compliance. Department staff members conducted a follow-up visit during which the new operators worked with the staff to develop an operations and maintenance manual for the facility to help insure continued permit compliance.

CONSTRUCTION OF WASTEWATER TREATMENT FACILITIES

Contact: Steve McLaughlin, DEP BLWQ, Division of Water Quality Management (DWQM)

Tel: (207) 287-7768 email: Steve.A.Mclaughlin@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/grants.htm

Clean Water State Revolving Fund and Maine Construction Grants Program: SRF program monies are used to provide low-interest loans (2% below market rates) to communities and sanitary districts to upgrade treatment facilities. The program depends on a yearly Federal Capitalization Grant which must be matched with a 20% State Grant. Construction grants help fund wastewater projects in communities where user charges are too high to borrow money.

Between January 2006 and May 2007, the Maine DEP Construction Grants Program provided grants to 8 projects and the Clean Water State Revolving Fund (SRF) funded 18 projects, some with assistance from the United States Department of Agriculture (USDA) Rural Development program grants/loans and Community Development Block Grant (CDBG) grant money. These projects included new facilities, upgrades, additions, modifications, abatement of combined sewer overflows and refinancing for a total cost of approximately \$216,098 in State grants and \$23,411,441 in SRF loans.

MAINE COMBINED SEWER OVERFLOW PROGRAM

Contact: John True, DEP BLWQ, Division of Water Quality Management (DWQM)

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Related Website: <http://www.maine.gov/dep/blwq/doceng/csotech.htm>

Thirty-seven Maine communities are served by combined sewer systems, which convey a combination of sanitary and storm water flows to wastewater treatment facilities. During dry weather, all of the sewage in a combined system is conveyed to the treatment plant for adequate treatment. However, during rainstorms or snow-melt periods, stormwater mixes with the sanitary sewage, causing flows that exceed the capacity of the sewer system. This results in combined sewer overflows (CSOs), which vary extensively in pollutant types, concentrations and loads, as well as in volume of overflow and severity of impact to the receiving waterbodies. Maine has established an aggressive program, coordinated with EPA's CSO program, to assist

communities in evaluating the design, condition, activity, and effects of combined sewer systems and overflows.

Highlights for 2006

- Two of Maine's CSO communities, Fort Kent and Kittery, have completed their CSO abatement projects since the last Integrated Report and no longer have permitted CSO's.

Table 3-2CSO Program Summary Statistics

Parameter	End of Report Year 2005	End of Report Year 2006	Increase/(Decrease)
Number of CSO Communities	39	37	(2) or (5%)
Number of CSO Discharge Points	205	193	(12) or (6%)
Total of Annual Discharge Days for Communities	1074	816	(258) or (24%)
Total Annual Volume of CSOs (Billion Gallons)	3.8	3.2	(0.6) or (16%)
Yearly Precipitation (Inches)	65	57	(8) or (12%)
Million Gallons Discharged per Inch of Yearly Precipitation (MG/Inch)	59	56	(3) or (5%)

SMALL COMMUNITY FACILITIES PROGRAM

Contact: Tim MacMillan, DEP BLWQ, Division of Water Quality Management (DWQM)

Tel: (207) 287-7765 email: Tim.A.Macmillan@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docgrant/scgpara2.htm

From its inception in 1982, the Small Community Grant Program (SCGP) has disbursed \$24.4 million dollars in grant monies and is estimated to have cumulatively eliminated the discharge of over 1.2 million gallons of untreated wastewater every day.

Although state bond issues usually fund this grant program, in the past it has also received some funding directly from state appropriations. These funds have been used to assist municipalities with the construction of individual or cluster-type wastewater treatment systems that were designed to eliminate heavily polluted discharges from either already malfunctioning systems or non-existing system ("straight pipes"). This amount of funding has resulted in the construction of new wastewater treatment facilities in over 300 communities throughout the state. The total estimated value of the facilities built with Small Community Grants is approximately \$28 million dollars.

Currently, requests for assistance outweigh available funding. Between 2006-2007, we disbursed grants in excess of \$1.1 million dollars to 86 communities to replace 138 systems as detailed below. Table 3-3 provides a summary of information about the program on a year-by-year basis.

Highlights 2006 - 2007

2006 - 72 systems were replaced removing 19,440 gallons of untreated discharges.

2007 - 66 systems were replaced removing 17,820 gallons of untreated discharges.

Table 3-3 Yearly Summary of SCGP Activities

Small Community Grant Program: Year-by-Year Summary				
Calendar Year	Grant Amount Disbursed	Total Facility Value	Systems Installed	Wastewater Treated (Gal/Day)*
2000	\$1,370,528	\$1,651,238	251	67,770
2001	\$1,142,009	\$1,375,914	167	45,090
2002	\$1,354,130	\$1,631,482	208	56,160
2003	\$1,086,265	\$1,308,753	183	49,410
2004	\$795,327	\$958,225	136	36,720
2005	\$399,078	\$480,817	64	17,280
2006	\$587,517	\$707,852	72	19,440
2007	\$547,262	\$637,039	66	17,820

* These figures are based on calculations derived from the Maine Plumbing Code.

1. Total Facility Value is based on an assumed average grant funding of 83% of total value of facilities installed.
2. Wastewater treated is based on # systems x270 gallons/system/day
3. Data prior to 2004 has not been revised.
4. Systems installed for 2004 and 2005 have been determined from correlating payments made to the requisitions for payment.

Please refer to page 32 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further discussion of the Small Community Grant Program and yearly summaries for years 1982-1999.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

LICENSING OF WASTEWATER DISCHARGES

Contact: Gregg Wood, DEP BLWQ, Division of Water Quality Management

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Related Website: www.maine.gov/dep/blwq/docstand/wastepage.htm

The Division of Water Quality Management is responsible for the licensing and re-licensing of all surface wastewater discharges, whether industrial, commercial, municipal or residential. In Maine, the vast majority of wastewater discharge sources have previously been licensed. Therefore, the licensing program is focused largely upon renewal of existing licenses, rather than development of new licenses.

Please refer to pages 32-33 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further discussion of Water Discharge Licensing Program.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

OVERBOARD DISCHARGE GRANT PROGRAM

Contact: Tim MacMillan, DEP BLWQ, Division of Water Quality Management (DWQM)

Tel: (207) 287-7765 email: Tim.A.Macmillan@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docgrant/obdpara.htm

As of December 31, 2007 Maine has 1,435 licensed overboard discharges (OBDs). OBDs are discharges of wastewater from individual homeowners or businesses to

surface waters (typically marine waters) where existing lots are unsuitable for subsurface disposal and no municipal system is available. OBDs typically lead to closures of shellfish growing and harvesting areas.

In 1989 an OBD Removal Grant Program was established. The priorities of the grant program are to eliminate discharges that either causes the closure of shell fishing areas or that cause a public nuisance. Since the beginning of the program, approximately \$6.3 million dollars have been spent in the process of removing 532 systems. The total acreage opened to shellfish harvesting since the start of the OBD Grant Program is over 17,000 acres. According to the DMR, opening and fully utilizing this much shellfish harvesting area has the potential to release a harvest with a retail value of over \$4.4 million dollars annually.

Highlight 2006 - 2007

A total of 90 OBD systems were removed in 2006-2007. The Maine Department of Marine Resources indicates that 345 acres of shellfish habitat were re-opened to shellfish harvesting in 2005-2006. (Table 3-4).

Table 3-4 Shellfish Areas Opened from 1991 to 2007

Town	Name of Shellfish Area	1991- 1999	2000-2004	2005	2006	2007
		Acres Opened	Acres Opened	Acres Opened	Acres Opened	Acres Opened
Addison	Cape Split Hrbr, Eastern Hrbr	135				
Bar Harbor	Indian Point	49				
Beals	Black Duck Cove, Flying Place	107				
Blue Hill	Bragdon Brook Cove		198			
Bremen	Greenland Cove		100			
Brooklin	Naskeag Point, Center Hrbr, Eggemogin Reach	10	36			
Brooksville	Seal Cove, Weir Cove, Orcutt Harbor	1,549				
Cushing	Pleasant Point		189			
Deer Isle	Sylvester Cove, Dunham Point	241				
Eastport	Carrying Place Cove	400				
Freeport	Cousins River	87				
Friendship	Hatchet Cove	86				
Gouldsboro	Prospect Harbor	1,076				
Hancock	Jellison Cove, Hancock Point	749				
Harpswell	Quahog Bay	1,627	2		91.7	18.9
Isle au Haut	Thorofare	240				
Kennebunkport	Marshall Point		803			
Kittery	Spruce Creek		478			
Milbridge	Pigeon Hill Bay, Back bay	443				
Mount Desert	Indian Pt., Mill Cove, Somes Sound, SW Hrbr- Western Way	290	1,896			
Ogunquit	Oarweed Cove		120			
Owls Head	Otter Point	50				
Robbinston/Perry	Mill Cove/Lewis Cove			196		
Scarborough	Plummers Island		4			

2008 Maine Integrated Water Quality Report

Searsport	Stockton Springs	51				
Sedgwick	Billings Cove	9				
S. Thomaston	Waterman's Beach		59			
Steuben	Pigeon Hill Bay, Pinkham Bay	344				
Sullivan	Sullivan River	167				
Swans Island	Round Island, Mackerel Cove	99				
Tremont	Moose Island	965				
Trenton	MDI Narrows	69				
Vinalhaven	Arey Cove, Seal Cove	1,178	2,278			
W. Bath & Phippsburg	Bringham's Cove (New Meadows)		1,020		57.5	
Yarmouth	Cousins River	7				
York	York River		141			
Total Acreage Opened		10,028	7,324	196	149.2	18.9
Cumulative Totals		10,028	17,352	17,548	17,697.2	17,716.1

Please refer to pages 33-34 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further discussion of Water Discharge Licensing Program. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

COMPLIANCE EVALUATION

Contact: Sterling Pierce, DEP BLWQ, Division of Water Quality Management (DWQM)

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Related Website: www.maine.gov/dep/blwq/docstand/wastepage.htm

The Department uses a three-part program to evaluate the compliance of wastewater treatment facilities. The compliance evaluation program involves on-site inspections of wastewater treatment facilities, occasional sampling of their effluent quality on a selective basis, and monthly evaluation of the licensees' self-monitoring reports. Discharge licenses also require immediate reporting of any major malfunctions, bypasses or exceedences of license limits to DEP inspectors.

Highlight for 2006 - 2007

A new compliance initiative in 2006 and 2007 intensified the focus on inspections at wastewater treatment facilities. The Department staff have identified 5 inspection categories and developed more intensive inspection checklists to assist in the evaluation of these operational aspects. Department staff will focus on one of these categories each year of the 5-year permit cycle. The inspection categories are: process control, operations and maintenance, laboratory procedures, collection system, data management. This approach will create a more comprehensive evaluation of the facility each permit life cycle, giving a more balanced and thorough evaluation of the facility operations.

ENFORCEMENT OF WATER QUALITY LAWS

Contact: Dennis Merrill, DEP BLWQ, Division of Water Quality Management (DWQM)

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Related Website: www.maine.gov/dep/blwq/enforcement.htm

The general philosophy of the DEP, BLWQ is to gain compliance and resolve problems at the least formal level that is appropriate, and to maximize the spirit of cooperation between the DEP and the regulated community. By fostering voluntary compliance with Maine's water pollution control laws, the overall effectiveness of the enforcement program is maximized and unnecessary litigation is avoided. Formal enforcement actions become necessary when violations of environmental laws are severe enough to warrant action regardless of the remediation effort, or when the violator is not responsive in preventing violations or refuses to cooperate with the DEP.

Highlights for 2006 - 2007

A total of 23 water discharge enforcement formal cases were settled in 2006 and 2007. In addition to the penalties collected that provide a deterrent to violation of water quality laws and recover any economic benefit that may have been gained, the enforcement actions also included a variety of corrective actions that will improve water quality such as: upgrades to wastewater treatment facilities, elimination of discharges, environmental remediation, and three Supplemental Environmental Projects.

Nature & Extent of Nonpoint Sources of Pollutants and Program Recommendations

THE MAINE NPS WATER POLLUTION CONTROL PROGRAM

Contact: Norm Marcotte, DEP BLWQ, Division of Watershed Management (DWM)

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Related Website: www.maine.gov/dep/blwq/docwatershed/npscontrol.htm

Maine's Nonpoint Source (NPS) Water Pollution Management Program (38 M.R.S.A. §410-I) helps restore and protect water resources from NPS pollution. The basic objective of the NPS program is to promote the use of state agency-defined "best management practice guidelines" (BMPs) to prevent water pollution. DEP administers the NPS program in coordination with state, federal, and local governments as well as non-government organizations. State agencies conduct programs that: (1) implement state laws or rules that require people to comply with performance standards governing certain land use activities to protect water quality; and (2) promote voluntary usage of best management practices.

Maine's BMP guidance manuals are available online:
www.maine.gov/dep/blwq/training/index.htm

To help protect Maine's threatened waters and restore NPS impaired waters, DEP administers Maine's Nonpoint Source Management Program. DEP helps watershed groups assess water quality problems and take action to reduce or remove nonpoint sources of water pollution. In 2006 - 2007, there were more than 60 active projects funded, in part, by the NPS Grant Program. DEP receives federal funds under Section 319 of the Clean Water Act from EPA. Under the NPS Grant Program, DEP issued grants to local project sponsors who provide a minimum of a 40% match to the grant funds. These projects help communities improve watersheds to restore or protect lakes, streams, or coastal waters that are impaired or considered threatened.

DEP also uses 319 funding for other programs designed to identify, prevent or reduce NPS water pollution problems. Staff provides technical assistance to local watershed groups and run education and outreach programs for a variety of target audiences - developers, building contractors, municipal officials, lakeshore landowners, teachers and the general public. Funds support assessment work, such as the Maine Volunteer Lake Monitoring Program, StreamTeams and stream sampling for benthic macro-invertebrates. Funds are used to develop Total Maximum Daily Load (TMDL) assessment reports for waters impaired primarily by NPS pollution.

The 2006 NPS Management Program Annual Report (May 2007) and the 2007 NPS Management Program Annual Report (April 2008) summarize the highlights and accomplishments of DEP's Nonpoint Source Program activities. Both reports are available at the following URL:

http://www.maine.gov/dep/blwq/docgrant/319_files/reports/index.htm

PRIORITY WATERBODIES

Please refer to pages 37-38 of the 2006 Integrated Water Quality Monitoring and Assessment Report for the Maine NPS Priority Waters lists for marine waters, rivers and streams, and lakes.

<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

COASTAL NONPOINT SOURCE PRIORITY WATERSHEDS

Contact: David Courtemanch, Director, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 287-3901 e-mail: Dave.L.Courtemanch@SPAM-ZAPmaine.gov

Please refer to page 39 of the 2006 Integrated Water Quality Monitoring and Assessment Report for information on the Maine coastal nonpoint source priority watersheds.

Related Website: <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

WATERSHED MANAGEMENT FOR STORMWATER PROGRAMS

Contact: Don Witherill, DEP BLWQ, Division of Watershed Management (DWM)

Tel: (207) 287-7725 email: Donald.T.Witherill@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docstand/stormwater/index.htm

STORMWATER STANDARDS FOR DEVELOPMENT AND CONSTRUCTION

Maine's approach to managing impacts to water quality due to stormwater runoff underwent significant change in 2005, and the rules were subsequently revised in 2006. Changes that occurred in 2005 can be read on page 40 of the 2006 Integrated Water Quality Monitoring and Assessment Report

Related Website: <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

The changes in 2006 included the following:

- **Developed Area:** Narrowed the definition of developed area to no longer include areas that are changed from forest to meadow. This allows a project (such as an airport) to clear trees and still qualify under Permit by Rule as long as they keep the area in natural vegetation mowed no more than once per year.
- **Linear Project:** Changed definition of a "linear project" to "linear portion of a project" so that the term matches its usage in the rule, and allows subdivision roads to fall under the definition so that reduced, but still appropriate, treatment standards will apply to them.
- **BMP Standards:** Dropped the term "BMP standards" due to confusion over multiple meanings (regulatory and non-regulatory) of the term. Those standards are referred to as "general standards" in the rule.
- **General Standards - required treatment area:** Added flexibility to general standards so that treatment of impervious area can be reduced from 95% of the impervious area to 90%, provided that overall treatment on the site will remain equivalent.
- **Wetpond requirements:** Revised the technical requirements for use of a wet pond under the general standards section.
- **Redevelopment:** Changed the language on redevelopment of existing impervious area so that it applies to impervious area in place as of November 16, 2005 (the effective date of the rule revisions). This closes a loophole whereby a developer could pave just under an acre prior to coming in for a permit and have it treated as "existing" in order to avoid treatment of it.
- **Redevelopment - Site Projects:** Changed the language on redevelopment for Site Location projects under the general standards section so that the project must "meet the general standards to the extent practicable as determined by the department." The date of November 16, 2005 is used as cut-off date for "redevelopment" sites. This provides flexibility to the applicant and the Department, so that a very expensive treatment technology with high maintenance needs, such as an under parking lot manufactured system is not unrealistically required for a redevelopment site.
- **Redevelopment in urban impaired stream watersheds:** Dropped the requirement for redevelopment projects to meet the urban impaired stream standard if there will be no increase in impacts due to stormwater runoff.

- **Flooding standard:** In the standard that governs flooding, the revision allows the department to grant a variance for discharges to rivers other than “major river segments” if the department determines there will be no adverse impact.
- **Permit by rule:** Changes Permit by Rule language to add clarity and greater consistency with current PBR practices under the Natural Resources Protection Act (NRPA).
- **Permit shield:** Revised Permit shield language to make it clearer and to emphasize that a project cannot get an exemption from a standard required under the Site Law by breaking the project into pieces and first complying with a lesser standard under the Stormwater Law.
- **Appendix E:** Changed language in Appendix E to include under-drained soil filter beds, with specifications consistent with language in our new Stormwater BMP Manual.
- **Ch. 502, Appendix A: Lakes Most at Risk From Development:** The following lakes were added to this list: Abrams Lake in Eastbrooke; Androscoggin Lake in Wayne; Long Pond in Belgrade; Messalonskee Lake in Belgrade; Great Moose Lake in Hartland. Cobbossee Lake is removed from the “severely blooming” category.
- **Ch. 502, Appendix B: Urban Impaired Streams:** Bobbin Mill Brook in Auburn was removed from the list.

For more information about the Maine Stormwater Management Law and Rules, including a brochure that has further information about the changes to the rules, go to the stormwater program website:

www.maine.gov/dep/blwq/docstand/stormwater/index.htm

STORMWATER STANDARDS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) AND INDUSTRIAL STORMWATER DISCHARGES

Maine DEP issued a general permit for 28 municipalities and 7 other state or federal facilities with regulated MS4s in 2003. Please refer to page 41 of the 2006 Integrated Water Quality Monitoring and Assessment Report for information on stormwater standards for MS4 communities.

Related Website: <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

LAND USE AND GROWTH MANAGEMENT

Contact: Jeff Madore, DEP BLWQ, Division of Land Resource Regulation (DLRR)

Tel: (207) 287-7848 email: Jeff.G.Madore@SPAM-ZAPmaine.gov

Related Websites: Site Law www.maine.gov/dep/blwq/docstand/sitelawpage.htm

NRPA www.maine.gov/dep/blwq/docstand/nrpapage.htm

Shoreland Zoning Act www.maine.gov/dep/blwq/docstand/szpage.htm

Please refer to page 41 of the 2006 Integrated Water Quality Monitoring and Assessment Report for other information on the Shoreland Zoning Act, Site Location of Development Law, and the Natural Resources Protection Act. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Education and Outreach

Contact: Barbara Welch, DEP BLWQ, Division of Environmental Assessment

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Related Website: www.maine.gov/dep/blwq/education.htm

Since much of the degradation to the environment comes from individual actions, public education is vital to the mission of the Maine DEP. The Department has a responsibility to educate the public about the environment, requirements of environmental laws, and how to protect Maine's natural resources. To accomplish these goals, the Department must help to foster and encourage greater stewardship. In order to affect the behavior changes we need from our citizens, some programs are adopting social marketing principles including: determining target audiences and message, gathering research data on target audiences, determining effective outreach tools, and assessing the effectiveness of campaigns.

Target Audiences:

Youth and Teachers- The DEP conducts 50-70 classroom visits (over 1,500 students), Envirothon, field days (over 1,200 students), Bug Mania and Earth Science Day (both with about 2,000 students). In addition DEP funds 3 watershed grants per year to students and their teachers who partner with local organizations to protect a local water resource. The DEP also sponsors and organizes Water Festivals for 800 students and their teachers in the southern part of the state each year and every other year in northern Maine. The DEP conducts teacher training, both pre-service and in-service training. The DEP hires AmeriCorps interns to assist with these programs.

General Public- The DEP divides the public into categories based on the message of the campaign: homeowners for yard care practices, businesses for better commercial practices, etc. For example, the MS4 (Municipal Separate Storm Sewer System) communities conducted pilot projects to encourage targeted BMPS (i.e., yard care in some communities and pet waste pick-up in others) in targeted neighborhoods with evaluation as part of their permits. In addition the DEP is partnering with the MS4s and other NGOs on a mass media campaign, "ThinkBlue; Clean Water Starts with You". Assessment shows that the campaign has been very effective. LakeSmart is another example of reaching out to a subsection of the public. LakeSmart is an educational program that offers free opportunities for lakeshore homeowners to learn how to manage their home and yard to protect the water quality of their lake.

Contractors, Municipal Officials, and Other Targeted Groups- Through the NonPoint Source Training Center, the DEP reaches out to contractors, landscapers, and code enforcement officers to bring technical assistance, certification, and new training. DEP staff also train wastewater treatment plant operators, planning boards, realtors, CEO code enforcement and other audiences as needed.

Assessment:

We continue to include assessment in our projects to be sure we are using our resources where we can have measurable results. We evaluate programs (the number of workshops held or number of brochures handed out) but we also consider impact - what did we accomplish on the ground (or in the water) and context - who is doing what and why. This assessment makes us more effective and efficient and we

know whether we are making concrete changes on the ground. Assessing whether our programs actually impact water quality will be the next step.

The Environmental Impact and Economic & Social Costs/Benefits of Effective Water Quality Programs

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Assessment of the many types of costs and benefits associated with water quality changes is usually a very difficult task. While it is usually possible to determine that an improvement in water quality has been gained and to indicate a qualitative sense of the benefits observed; usually there is no easy way to directly assign a dollar figure to the changes and quantify this information in terms of the monetary value of benefits to human health or the environment.

The economic tools that would be useful in helping to estimate the costs and benefits of improvement in water quality have not yet been fully developed. As future environmental problems grow in complexity (and in cost) and as public budgets tighten, justifying the expense or demonstrating the true benefit of water quality related programs are likely to be cause for delay of support for continued improvement of water resources. Continued development of sophisticated economic tools for measuring the benefits of environmental projects and methods is essential part of "doing business".

The following sections contain brief summaries of selected water quality programs.

NONPOINT SOURCE MANAGEMENT

Contact: Norm Marcotte, DEP BLWQ, Division of Watershed Management (DWM)

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Related Website: www.maine.gov/dep/blwq/docwatershed/npscontrol.htm

Table 3-5 summarizes costs for NPS (non-point source) pollution programs involving Federal grants under section 319 of the Clean Water Act in addition to non-federal matching funds. This summary does not include other State agency funding of personnel or programs conducting NPS control activities. Table 3-5 is a summary of Section 319(h) Clean Water Act Grant Awards to Maine DEP for Federal Fiscal Years (FFY) 2003 to 2007.

Table 3-5 Section 319(h) Clean Water Act Grant Awards to Maine

Grant Year (FFY)	Federal 319 Award	Base	Incremental	Non-Federal Match	Total
2003	\$2,740,732	\$1,572,554	\$1,168,178	\$1,827,155	\$4,567,887
2004	\$2,670,204	\$1,502,081	\$1,168,123	\$1,780,890	\$4,451,094
2005	\$2,318,844	\$1,151,519	\$1,167,325	\$1,546,669	\$3,856,513
2006	\$2,303,829	\$1,136,597	\$1,167,232	\$1,545,896	\$3,849,725
2007	\$2,256,543	\$1,077,063	\$1,167,066	\$1,504,362	\$3,760,905

ECONOMIC CONTRIBUTION OF MAINE GREAT PONDS

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Related Website: www.maine.gov/dep/blwq/doclake/research.htm

In addition to providing valuable natural habitat for fish and wildlife communities, Maine lakes are an integral part of Maine's economy. Lake-related uses contribute more than \$2.3 billion into the State's economy each year. In fact, lakes support over 52,000 jobs statewide. The total net economic value of Maine's Great Ponds (lakes and ponds 10 or more acres in surface area) is at least \$8.5 billion dollars annually (1996 research updated to 2005 dollars). Surveys show that water clarity, quality of swimming, and scenic beauty are important to most people when they choose which lake to visit or where to buy property. A noticeable gain or loss in water quality could change statewide use rates by up to 13% (1.6 million user-days) each year. If water clarity declines, the potential loss in property value could be as much as \$30,000 per property based on mid-1990s property values. These dramatic estimates make lake protection a priority for the entire state.

THE POLLUTION PREVENTION (P2) PROGRAM

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Related Website: <http://www.state.me.us/dep/innovation/p2/>

The Pollution Prevention (P2) Program is based on the practical notion that it is far more protective of the environment (in addition to being far more cost-effective) to eliminate or reduce pollution at its source rather than to clean up pollution that has already been released into an ecosystem. The P2 Program engages in a proactive approach that utilizes the common ideals of increased efficiency, conservation of resources, reduced waste (and costs), etc. to identify those points in a process that generate pollution. Once identified, the P2 Program also utilizes many approaches like forming good habits, purchasing new products and implementing new technologies to analyze, zero in on and help to correct those portions of a process that generate preventable pollution. Then the Program uses some or all of these tools to reduce or eliminate that source of pollution.

Please refer to pages 45-48 of the 2006 Integrated Water Quality Monitoring and Assessment Report for information on costs/benefits of the Pollution Prevention Program. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

CHAPTER 4 SURFACE WATER MONITORING & ASSESSMENTS

Assessment Methodology

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LISTING METHODOLOGY FOR THE 2008 305B / 303D INTEGRATED REPORT LIST

Determination of water quality attainment is based on a water meeting all standards and criteria established for its assigned classification (38 MRSA Section 465, 465-A, 465-B). Waters are listed by Assessment Unit (HUC) and/or waterbody segment in one of five categories of attainment (see category descriptions below). All freshwaters in Maine in previous cycles were listed in a narrative Category 5-C “Impairment caused by atmospheric deposition of mercury” due to the Statewide fish consumption advisory due to mercury. All freshwaters are now moved to Category 4A “Total Maximum Daily Load (TMDL) is completed”, as a result of US EPA approval, on December 20, 2007, of a Regional Mercury TMDL. Other category listings are established independently from the statewide mercury advisory listing, thus all waters are listed in Category 4-A for mercury and in at least one other category.

All marine waters are listed by narrative in Category 5-D “Legacy Pollutants” as well as in one other category, (see Marine explanation below[†]). Each listing provides the Assessment Unit, Waterbody Number, Name, Size, Classification, Monitored Date, and depending on assessment determination, information on impairment, notes on previous listings, or other information. Listings for all surface waters are found in Appendices II-IV.

LISTING CATEGORIES (1-5)

Category 1:

Attaining all designated uses and water quality standards, and no use is threatened.

Highest level of attainment, waters in the assessment unit attains all applicable standards. Assessment is based on combined evaluation of the following information.

1. Current data (collected within five years) indicates attainment, with no trend toward expected non-attainment within the listing period.
2. Old data (greater than five years) indicates attainment and no change in any associated conditions.
3. Water quality models predict attainment under current loading, with no projected change in loading that would predict non-attainment.

[†] All estuarine and marine waters in Maine have an advisory for the consumption of shellfish (lobster tomalley) due to the presence of PCBs and dioxins presumed to be from atmospheric deposition or historical sources. The advisory is based on probability data that shellfish (lobster tomalley) inhabiting estuarine or marine waters may exceed the advisory action level for these substances. This Integrated Water Quality Monitoring and Assessment Report does not consider this statewide advisory in establishing other category listings.

4. Qualitative data or information from professional sources indicating attainment of standards and showing no identifiable sources (e.g. detectable points of entry of either licensed or unlicensed wastes) of pollution, low impact land use (e.g. intact riparian buffers, >90% forested watershed, little impervious surface), watershed within state or federal reserve land, park, wilderness area or similar conservation protection, essentially unaltered habitat, and absence of other potential stressors.

5. Determination that the direct drainage area has a human population of <0.1 per square mile according to U.S. Census data obtained in 2000 and watershed conditions as described in item 4, above. For lakes, determinations are based on census data at the town level and consider all towns in the direct drainage of larger (referred to in previous 305(b) reports as "significant") lakes. Populations for the remaining lakes (generally less than ten acres) are determined for the town listed as the point-of-record for the water according to the Department of Inland Fisheries and Wildlife Lake Index database.

Category 2:

Attains some of the designated uses; no use is threatened; and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).

Assessment is based on combined evaluation of the following information.

1. Current data (collected within five years) for some standards indicating attainment, with no trend toward expected non-attainment within the listing period, or an inadequate density of data to evaluate a trend.
2. Old data (greater than five years) for some standards indicating attainment, and no change in associated conditions.
3. Water quality models that predict attainment under current loading for some standards, with no projected change in loading that would predict non-attainment.
4. (For lakes) Probabilistic-based monitoring that indicates a high expectation of use attainment for certain classes of waters based on random monitoring of that class of waters.
5. Insufficient data for some standards, but qualitative data/information from professional sources indicate a low likelihood of impairment from any potential sources (e.g. high dilution, intermittent/seasonal effects, low intensity land use).

Category 3:

Insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).

Assessment is based on combined evaluation of the following information. Monitoring schedules are assigned to these waters.

1. Insufficient or conflicting data that does not confirm either attainment or non-attainment of designated uses.
2. Qualitative data or information from professional sources showing the potential presence of stressors that may cause impairment of one or more uses; however, no quantitative water quality information confirms the presence of impairment-causing stressors.

3. Old data, with:
 - a. low reliability, no repeat measurements (e.g. one-time synoptic data),
 - b. a change of conditions without subsequent re-measurement; or
 - c. no evidence of human causes or sources of pollution to account for observed water quality condition (natural conditions that do not attain water quality standards are allowed by 38 M.R.S.A. Section 464.4.C).
4. (For lakes) Current data indicates a return to (or a trend towards) attainment standards over the past few years but requires confirmation; or conversely, that trophic or dissolved oxygen profile evaluation suggests deteriorating conditions requiring further study and verification. (Since lakes respond over a longer period of time and can be highly influenced by weather attributes, it is appropriate to recommend additional monitoring before attainment is determined.)

Category 4:

Impaired or threatened for one or more designated uses, but does not require development of a TMDL.

A water body is listed in Category 4 when impairment is not caused by a pollutant; or, if impairment is caused by a pollutant, but where a TMDL has already been completed, or where other enforceable controls are in place. An impaired waterbody will be listed in Category 5 if both a pollutant and a non-pollutant are involved that would independently cause an impaired or threatened condition. Waters are listed in one of the following Category 4 sub-lists when:

1. Current or old data for a standard indicates either impaired use, or a trend toward expected non-attainment within the listing period, but also where enforceable management changes are expected to correct the condition,
2. Water quality models that predicted impaired use under loading for some standard, also predict attainment when required controls are in place, or,
3. Quantitative or qualitative data/information from professional sources indicates that the cause of impaired use is not from a pollutant(s) (e.g. habitat modification).

4-A: TMDL is completed. A TMDL is complete but insufficient new data exists to determine that attainment has been achieved.

Note: For the 2008 cycle the 4A category now includes all freshwaters in Maine that were listed in previous cycles in a narrative Category 5-C “Impairment caused by atmospheric deposition of mercury” due to the Statewide fish consumption advisory due to mercury. On December 20, 2007 US EPA approved a Regional Mercury TMDL for the Northeast.

4-B: Other pollution control requirements are reasonably expected to result in attainment of standards in the near future. Waterbodies where enforceable controls have a reasonable expectation of attaining standards, but where no new data are available to determine that attainment has been achieved. (Enforceable controls may include: new wastewater discharge licenses issued without preparation of a TMDL, other regulatory orders, contracts for nonpoint source implementation projects, regulatory orders or contracts for hazardous waste remediation projects).

4-C: Impairment is not caused by a pollutant. Waters impaired by habitat modification that is a result of human activity.

Note: Natural conditions that do not attain water quality standards and criteria are allowed by 38 M.R.S.A. Section 464.4.C. Waters that show impairment due to natural phenomena are listed in Categories 1 through 3.

Category 5:

Waters impaired or threatened for one or more designated uses by a pollutant(s) and a TMDL is required.

Waters are listed in one of the Category 5 sub-lists when:

1. Current data (collected within five years) for a standard either indicates impaired use, or a trend toward expected impairment within the listing period, and where quantitative or qualitative data/information from professional sources indicates that the cause of impaired use is from a pollutant(s),
2. Water quality models predict impaired use under current loading for a standard, and where quantitative or qualitative data/information from professional sources indicates that the cause of impaired use is from a pollutant(s), or,
3. Those waters have been previously listed on the State's 303(d) list of impaired waters, based on current or old data that indicated the involvement of a pollutant(s), and where there has been no change in management or conditions that would indicate attainment of use.

5-A: Impairment caused by pollutants (other than those listed in 5-B through 5-D). A Total Maximum Daily Load is required and will be conducted by the State of Maine. TMDL schedules are assigned based on the value of a particular water (considering size, public use, proximity to population centers, and level of public interest for water quality improvement), the nature of the impairment and the source(s) of the problem, available information to complete the TMDL, and availability of staff and contractual resources to acquire information and complete the TMDL study. Projected schedules for TMDL completion are included in Chapter 8 as well as in the Appendices.

5-B: Impairment is caused solely by bacteria contamination. A TMDL is required. Certain waters impaired only by bacteria contamination may be high priority resources, such as shellfish areas, but a low priority for TMDL development if other actions are already in progress that will correct the problem in advance of TMDL development (e.g. better compliance). Certain small streams that are impaired solely by bacteria contamination but where recreation (swimming) is impractical because of their small size are listed in 5-B. Relative to other, more ecologically detrimental causes of impairment these waters are considered a lower priority for TMDL completion. A projected schedule of TMDL completion is included where applicable. Waterbodies impaired only by Combined Sewer Overflows, where current CSO Master Plans (Long-Term Control Plan) are in place, will be monitored to demonstrate that water quality standards are attained and that provisions are in place for both funding and compliance timetables.

5-C: Impairment caused by atmospheric deposition of mercury and a regional scale TMDL is required. Due to EPA approval of a regional scale TMDL for the control of mercury all of Maine's Category 5C waters have been administratively moved to Category 4A.

5-D: Impairment caused by a "legacy" pollutant. This sub-category includes:

1. waters impaired only by PCBs, dioxins, DDT, or other substances already banned from production or use. It includes waters impaired by contaminated sediments where there is no additional extrinsic load occurring. This is a low priority for TMDL development since there is no controllable load.
2. coastal waters that have a consumption advisory for the tomalley (hepato-pancreas organ) of lobsters due to the presence of persistent bioaccumulating toxics found in that organ. This is a low priority for TMDL development since there is no identifiable and controllable load.

DELISTING FROM AN IMPAIRED TO AN UNIMPAIRED CATEGORY.

Because there are a number of listing options available in the integrated list, some waterbodies may be removed from the previous 303(d) list, however, only under certain circumstances. The State must provide new information, to EPA's satisfaction, as a basis for not listing specific waters that had been previously included on a 303(d) list. Acceptable reasons for not listing previously listed waters as provided in 40 CFR 130.7(b) may include situations where:

- The assessment and interpretation of more recent or more accurate data demonstrates that the applicable water quality standard(s) is being met (list in Category 1, 2, (3 for lakes)).
- The results of more refined water quality modeling demonstrate that the applicable water quality standard(s) is being met (list in Category 1 or 2).
- It can be demonstrated that errors or insufficiencies in the original data and information led to the water being incorrectly listed (list in Category 3).
- It can be documented that there are changes in the conditions or criteria that originally caused the water to be impaired and therefore originally led to the listing. For example, new control equipment has been installed, a discharge has been eliminated, or new criteria adopted (list in Category 1, 2, 3, or 4-B).
- The State has demonstrated pursuant to 40 CFR 130.7(b)(1)(ii), that there are effluent limitations required by State or local authority, which are more stringent than technology-based effluent limitations, required by the Clean Water Act, and that these more stringent effluent limitations will result in the attainment of water quality standards for the pollutant causing the impairment within a reasonable time (list in Category 4-B).
- The State has demonstrated pursuant to 40 CFR 130.7(b)(1)(iii), that there are other pollution control requirements required by State, local, or federal authority that will result in attainment of water quality standards for a specific pollutant(s) within a reasonable time (list in Category 4-B).
- The State included on a previous Section 303(d) list some Water Quality Limited Segments beyond those that are required by EPA regulations, e.g., waters where there is no pollutant associated with the impairment (list in Category 4-C).
- A TMDL has been approved or established by EPA since the last 303(d) list (list in Category 4-A).

Chapter 8 Tables 8-1, 8-2 and 8-3 present waters that have been delisted from Maine's 2006 impaired waters (303d) list.

Assessment Criteria

Tables 4-1 through 4-3 provide the designated use categories and the criteria (with references) used to assess a water's attainment of the use. A determination of non-attainment is only made when there is documented evidence (e.g. monitoring data) indicating that one or more criteria are not attained. Such data are also weighed against evidence that there are plausible human-caused factors that may contribute to the violation of criteria (38 MRSA Section 464.4.C).

Table 4-1 Maine Designated Uses and Criteria for Rivers and Streams

RIVERS AND STREAMS

Designated Use	Criteria for Attainment
Drinking water supply after disinfection / treatment	<ul style="list-style-type: none"> • Ambient Water Quality Criteria (Maine DEP Chapter 530) • General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A) • Maine CDC's Maximum Exposure Guidelines (MEGs)
Aquatic life use support	<ul style="list-style-type: none"> • Biomonitoring numeric criteria (Maine DEP Rule Chapter 579) • Habitat suitability (38 MRSA Section 464.13, 465.1-4) • Dissolved oxygen (38 MRSA Section 464.13, 465.1-4) • Ambient Water Quality Criteria (Maine DEP Chapter 530.5) • Support of indigenous species • Wetted habitat (Maine DEP Chapter 581) • General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Fishing/Fish Consumption	<ul style="list-style-type: none"> • Support of indigenous fish species • Absence of fish consumption advisory (instituted by Maine CDC) • General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Recreation in and on the water	<ul style="list-style-type: none"> • <i>E. coli</i> bacteria (38 MRSA Section 465, geometric mean) • Water color (38 MRSA Section 414-C) • General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Navigation, hydropower, agriculture / industrial supply	<ul style="list-style-type: none"> • General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)

Table 4-2 Maine Designated Uses and Criteria for Lakes and Ponds

LAKES AND PONDS

Designated Use	Criteria for Attainment
Drinking water supply after disinfection / treatment	<ul style="list-style-type: none"> Ambient Water Quality Criteria (Maine DEP Rule Chapter 530.5) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Aquatic life use support	<ul style="list-style-type: none"> Trophic state (38 MRSA Section 465-A, DEP Chapter 581) Ambient Water Quality Criteria (Maine DEP Chapter 530.5) Aquatic life (38 MRSA Section 465-A, 464.9); General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Fishing	<ul style="list-style-type: none"> Support of indigenous fish species No fish consumption advisory (instituted by Maine CDC) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Recreation in and on the water	<ul style="list-style-type: none"> <i>E. coli</i> bacteria (38 MRSA Section 465-A, geometric mean) Trophic state (38 MRSA Section 465-A, DEP Rule Chapter 581) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Navigation, hydropower, agriculture / industrial supply	<ul style="list-style-type: none"> General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)

Table 4-3 Maine Designated Uses and Criteria for Estuarine and Marine Waters

ESTUARINE AND MARINE WATERS

Designated Use	Criteria for Attainment
Marine life use support	<ul style="list-style-type: none"> Ambient Water Quality Criteria (Maine DEP Chapter 530.5) Dissolved oxygen (38 MRSA Section 465-B) Narrative biological standards (38 MRSA Section 465-B) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Shellfish propagation and harvest	<ul style="list-style-type: none"> National Shellfish Sanitation Program (as assessed by DMR) No shellfish consumption advisory (instituted by Maine CDC) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Aquaculture	<ul style="list-style-type: none"> General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Fishing	<ul style="list-style-type: none"> Support of indigenous fish species No fish consumption advisory (instituted by Maine CDC) General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Recreation in and on the water	<ul style="list-style-type: none"> Enterococcus bacteria (38 MRSA Section 465-B, geometric mean) <ul style="list-style-type: none"> General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)
Navigation, hydropower, industrial supply	<ul style="list-style-type: none"> General provisions: floating/settleable solids, pH, radioactive substances, (38 MRSA Section 464.4.A)

DATA INTERPRETATION

It is not common to have complete and consistent water quality data; therefore, some interpretation of data is required in making a final assessment. Data from unique events such as a spill, an accident, a short-duration license exceedence, or a drought or flood are not used in an assessment determination. The following general principles for each criteria type are used in making an assessment:

Biomonitoring Criteria: For samples collected in accordance with the Biomonitoring Program Quality Assurance Project Plan, assessments are based on probability results of the numeric biocriteria models for tiered aquatic life Classes AA/A, Class B and Class C Criteria (Maine DEP Rule Chapter 579: Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams). Aquatic life criteria are deemed to be attained when the applicable biocriterion is met with probability greater than 60%. Final determination of attainment may in some cases be made by professional judgment, applied in accordance with the procedures described in Maine DEP Chapter 579.

Lake Trophic State: Assessment is based on measures of transparency, chlorophyll a, total phosphorus and color (Table 4-4). When lakes lack this information, a trophic determination made by DIF&W is used, if available. Their determination is more subjective and generally applies to the lake system as a whole including adjacent wetlands and fisheries productivity. Trophic determination is tracked by source (DEP or DIF&W) in the assessment database.

Table 4-4 Lake Trophic State Parameters and Guidelines

Numerical Guidelines for Evaluation of Trophic Status in Maine *			
(Note: Dystrophy is not often evaluated as a trophic category separately from categories below.)			
Parameter ¹	Trophic Status		
	Oligotrophic	Mesotrophic ²	Eutrophic
SDT ³	> 8 meters	4-8 meters	< 4 meters
CHL a	< 1.5 ppb	1.5 – 7 ppb	> 7 ppb
Total Phosphorus ³	< 4.5 ppb	4.5 – 20 ppb	>20 ppb
TSI ^{3,4}	0-25	25-60	>60 and/or repeated algal blooms

¹ SDT, CHL a, and Total Phosphorus based on long-term means.

² No repeated nuisance algal blooms.

³ If color is > 30 Standard Platinum Units (SPU) or not known, chlorophyll a concentration (CHL a), dissolved oxygen and best professional judgment used to assign trophic category.

⁴ TSI = Trophic State Indices are calculated when adequate data exists and color is at or below 30 SPU.

* This table is a duplicate of Table 4-26 in the Lakes Section of this Chapter (appears twice for convenience).

Support of Indigenous Species: Assessment based on the known absence of a species that previously was documented as indigenous to a waterbody in historical records collected by state or federal agencies or through published scientific literature; or based on non-attainment of water quality criteria necessary to support indigenous species.

Dissolved Oxygen: Assessment of dissolved oxygen is based on the results of repeated measurements, collected over time. Single excursions of the criterion or excursions within the range of sampling or instrument error (as established in a Quality Assurance Project Plan) may not be used in every case unless there is corroborating evidence of reasonable potential for impairment of a use. Assessment

may also be based on the use of water quality models (e.g. QUAL2E) based on present or expected loadings. New legislation provides that dissolved oxygen in the thermocline and deeper waters of a riverine impoundment will not be used for measurement of water quality attainment.

Ambient Water Quality Criteria: Assessment is based on measured exceedance of Statewide Water Quality Criteria (or Site-specific criteria where they may exist), or reasonable potential to exceed the criteria following EPA's Principle of Independent Applicability and Technical support document. Single excursions of the criterion or excursions within the range of sampling or instrument error (as established in a Quality Assurance Project Plan) may not be used in every case unless there is corroborating evidence of reasonable potential for impairment of a use. Assessment may also be based on the use of water quality models (e.g. dilution models) based on present or expected loadings.

Nutrient/Eutrophication Biological Indicators: Non-numeric listing criteria for this cause of Aquatic Life Use impairment consist of documentation of abnormal biological findings that indicate nutrient enrichment in rivers and streams. Excess nutrients impair Aquatic Life Use through alteration of habitat from excessive growths of plants and algae, changes in dissolved gases like oxygen, caused by excess algal growth, resulting in diurnal dissolved oxygen sags, and alteration of benthic macroinvertebrate assemblage structure.

Bacteria: Assessment is based on repeated measurements to establish an annual geometric mean. Instantaneous (single sample) criteria are not used for water quality assessment due to the high variability associated with a single measurement. There must be a plausible human or domestic animal source of the bacteria for an impairment determination to be made (38 M.R.S.A Section 465, 465-A, 465-B).

Water Color: Assessment based on repeated measurements of discharge performance data (pulp and paper discharges only).

General Provisions: pH based on repeated measurement (between 6.0 and 8.5 for freshwaters; 7.0 and 8.5 for marine waters), however, certain naturally occurring waterbody types (e.g. bogs, aquifer lakes, high elevation lakes) or events may naturally have low pH and affect downstream waters. Use impairment from solids is subjectively determined. Radioactivity in surface water is not presently monitored.

Integrated Report Lists of Categories 1 Through 5

Table 4-5 Summary of State Waters Attaining and Not Attaining Standards

Waterbody Type	Total Assessed for Attaining of WQ Standards – Assessed for Designated Uses	Total with Insufficient Data for Assessment – Not Assessed for Any Designated Uses (Category 3)	Total Attaining All WQ Standards – Supporting All Designated Uses (Category 1)	Total Attaining At Least One Standard – Supporting at Least One Use, But Not All Standards Assessed (Category 2)	Total Not Attaining One or More WQ Standards – Not Supporting One or More Uses – But Not Needing a TMDL (Category 4)	Total Not Attaining One or More WQ Standards – Not Supporting One or More Uses – and TMDL is Needed (Category 5)
River & Stream Miles [‡]	31,218	379	4,347	25,288	216**	988
Number of Lakes/Ponds	5,780 *	10	2,857	2,881 *	28	4 **
Lake & Pond Acres	986,508 *	17,777	295,443	596,474 *	73,600	3,658 **
Estuarine/Ocean Square Miles	2,846.0	4.4	0.0	2,685.2	0.0	156.4 [°]
Estuarine/Ocean (Acres)	1,821,433.6	2,835.0	0.0	1,718,509.1	0.0	100,089.5 [°]
Freshwater/Tidal Wetland Acres	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹	N/A ¹

[‡]River and Stream mile summaries for each reporting category were generated by the Maine Assessment Database (ADB)

* Includes 6 Category 2 lakes (22 acres) on coastal islands, all 6 lakes are not assigned to mainland HUCs.

** These figures do not include those waters listed under Category 4A for atmospheric deposition of Mercury.

[°] All estuarine and marine waters (2,846 square miles) are affected by a shellfish (lobster tomalley) consumption advisory due to the presence of PCBs and dioxins. These Category 5 totals do not include coastal waters under the statewide consumption advisory.

¹ "N/A" means "Not Assessed".

Table 4-6 Individual Use Support Summary for Maine Rivers and Streams *

USE	Total Size	Size Assessed	Size Fully Supporting	Size Fully Supporting and Threatened	Size Not Supporting	Size with Insufficient Info
Drinking Water Supply After Disinfection	20,083.27	4,400.05	4,400.05	0	0	15,683
Drinking Water Supply After Treatment	10,944.84	969.17	965.95	0	3.22	9,980
Fish and Other Aquatic Life	31,033.41	30,647.4	30,031.64	0	615.76	299
Fish Consumption **	31,216.16	5,550.77	4,908.25	0	642.52	25,550
Fishing	31,029.41	5,366.52	5,358.33	0	8.19	25,550
Hydroelectric Power Generation	20,816.88	1,581.17	1,581.17	0	0	19,122
Industrial Process and Cooling Water Supply	20,816.88	1,581.17	1,581.17	0	0	19,122
Navigation	31,029.41	5,358.9	5,354.66	0	4.24	25,548
Primary Contact Recreation	31,029.41	5,364.18	5,142.35	0	221.83	25,361
Secondary Contact Recreation	31,029.41	5,364.18	5,160.79	0	203.39	25,361

*River and stream mile summaries were generated by the Maine Assessment Database (ADB)

** All freshwaters are listed for a fish consumption advisory due to mercury (Category 4A-EPA approved Regional Mercury TMDL).

The fish consumption (other) listing is for additional consumption advisories beyond than that caused by mercury (these waters also have a mercury advisory).

Table 4-7 Individual Designated Use Support Summary for Maine Lakes

CWA Goals	Designated Use	Size Fully Supporting – Attaining WQ Standards (Acres)	Size Not Supporting – Not Attaining WQ Standards (Acres)	Size Not Attainable – UAA Performed
Protect & Enhance Ecosystems	Aquatic Life Support	900,090	77,258	9,160
Protect & Enhance Public Health	Fish Consumption (Hg)	0	986,508	
	Swimming	962,144	24,364	
	Secondary Contact	986,508	0	
	Drinking Water Source Water	986,508	0	
Social & Economic	Agricultural	986,508	0	
	Industrial	986,508	0	
	Cultural or Ceremonial	986,508	0	
	State Defined:			
	1. Hydropower & Navigation	986,508	0	

Table 4-8 Individual Designated Use Support Summary for Estuarine and Marine Waters

CWA Goals	Designated Use	Size Fully Supporting – Attaining WQ Standards (square miles)	Size Not Supporting – Not Attaining WQ Standards (square miles)	Size Not Attainable – UAA Performed (square miles)
Protect & Enhance Ecosystems	Aquatic Life	2,842.83	3.16	0
Protect & Enhance Public Health	Fish Consumption ¹	0	2,845.99	0
	Shellfish Consumption ² (excluding lobster tomalley)	2,692.44	153.55	0
	Shellfish Consumption ³ (lobster tomalley)	0	2,845.99	0
	Swimming (primary and secondary contact)	2,845.97	0.02	0
Social & Economic	Aquaculture	2,845.99	0	0
	Navigation	2,845.99	0	0
	Industrial supply water	2,845.99	0	0
	Hydropower	2,845.99	0	0

¹ Based on a statewide fish/shellfish consumption advisory

² Does not include statewide advisories for PCBs or dioxin in lobster tomalley.

³ Based on a statewide consumption advisory for lobster tomalley.

Table 4-9 Total Sizes of Category 4 and 5 Impaired Rivers and Streams by Listing Causes/Stressors *

Cause/Stressor Type	Size Impaired (miles)
Pathogens (E. coli)	201.39
CSO-source	variable miles
Aquatic Life Criteria (integrated effects including biocriteria, habitat and nutrient biological indicators)	332.15
Oxygen depletion	398.5
Dissolved oxygen	377.02
BOD	32.02
Altered flow regime	32.16
Nutrients	194.26
Nutrient-eutrophication, biological indicators	137.85
Toxic inorganics	38.78
Metals	29.85
Toxic organics	431.53
Dioxin	379.04
Polychlorinated biphenyls	391.82
Pesticides	217.43
pH/Acidity/Caustic conditions	1
Sedimentation	8.19
Cause Unknown	0.63

* River and stream mile summaries were generated by the Maine Assessment Database (ADB)

Table 4-10 Total Sizes of Category 4 and 5 Lakes Impaired by Listing Causes/Stressors (Total acreage)

Cause/Stressor Type	Size Impaired (acres)
Habitat Assessment (Lakes)	48,964
Methylmercury	986,952
Oxygen, Dissolved	634
Phosphorus (Total)	28,294
Secchi Disk Transparency	27,660
Turbidity	7,865

Table 4-11 Total Sizes of Category 4 and 5 Lakes Impaired by Listing Causes/Stressors (by Category)

Listing Category	Cause/Stressor Type	Size Impaired (acres)	Number Impaired
4A	Oxygen, Dissolved	634	1
	Phosphorus (Total)	24,636	23
	Secchi disk transparency	24,000	23
4C	Habitat Assessment (Lakes)	48,964	5
	Turbidity	7,865	1
5A	Secchi disk transparency	3,658	4
	Phosphorus (Total)	3,658	4
5C	Methylmercury	986,508	5780

Table 4-12 Total Sizes of Category 4 and 5 Impaired Estuarine and Marine Waters by Causes/Stressors

Cause/Stressor Type	Size Impaired (square miles)
Bacteria	153.55
Bacteria (CSOs)	Variable
Dissolved Oxygen	0.3
Sediment Oxygen Demand	0.3
Toxics	-
Metals-copper	0.9
PAHs	0.5
PCBs	2,845.99
Dioxins	2,845.99
Aquatic Life	3.16

Table 4-13 Total Sizes of Category 4 and 5 Waters Impaired by Source for Rivers and Streams

Source Category	Size Impaired (miles)
Agriculture	330
aquaculture	9
Atmospheric deposition (mercury deposition)	31,218
Habitat modification- non-hydromodification	52
Hydromodification- dams and impoundments	82
Industrial permitted discharges	120
Land application waste sites- RCRA, illegal dumps, abandoned mines	37
Legacy pollutants-dioxin, PCBs, DDT	364
Municipal discharges, permitted	201
Other municipal discharges, including stormwater	167
Airports	2.5
Post-development erosion and sedimentation	58
Wet weather discharges	49
CSOs	(variable miles)
Upstream source	26
Urban runoff, non-regulated	109

* River and stream mile summaries were generated by the Maine Assessment Database (ADB)

Table 4-14 Total Sizes of Waters Impaired by Sources for Maine Lakes

Source Category	Size Impaired (acres)
Atmospheric Deposition – Toxics	986,952
Crop Production (Crop Land or Dry Land)	7,491
Flow Alterations from Water Diversions	30
Impacts from Hydrostructure Flow Regulation/modification	48,964
Industrial Land Treatment	1,820
Internal Nutrient Recycling	11,490
Landfills	29
Livestock (Grazing or Feeding Operations)	5,093
Natural Sources	10,195
Non-irrigated Crop Production	10,532
Residential Districts	5,119
Rural (Residential Areas)	22,580
Unspecified Unpaved Road or Trail	3,296
Unspecified Urban Stormwater	3,296
Upstream/Downstream Source	83

Table 4-15 Total Sizes of Waters Impaired by Sources for Maine Lakes by Listing Category

Listing Category	Source	Size Impaired (acres)	Number of Lakes
4A	Crop Production (Crop Land or Dry Land)	7,030	7
	Flow Alterations from Water Diversions	30	1
	Industrial Land Treatment	1,420	1
	Internal Nutrient Recycling	11,490	7
	Landfills	29	1
	Livestock (Grazing or Feeding Operations)	5,093	5
	Municipal Point Source Discharges	4288	1
	Natural Sources	1,869	2
	Non-irrigated Crop Production	10,532	5
	Residential Districts	2,405	2
	Rural (Residential Areas)	22,119	18
	Unspecified Unpaved Road or Trail	582	1
	Unspecified Urban Stormwater	582	1
4C	Impacts from Hydrostructure Flow Regulation/modification	48,964	5
	Natural Sources	7,865	1
5A	Crop Production (Crop Land or Dry Land)	461	1
	Industrial Land Treatment	400	1
	Natural Sources	461	1
	Non-irrigated Crop Production	0	1
	Residential Districts	2,714	1
	Rural (Residential Areas)	461	1
	Unspecified Unpaved Road or Trail	2,714	1
	Unspecified Urban Stormwater	2,714	1
Upstream/Downstream Source	83	1	

Listing Category	Source	Size Impaired (acres)	Number of Lakes
5C	Atmospheric Deposition – Toxics	986,508	5780

Table 4-16 Total Sizes of Waters Impaired by Sources for Estuarine and Marine Waters

Source Category (examples)	Size Impaired (square miles)
Legacy Pollutants	2,845.99
Municipal Point Sources / Overboard Discharge	143.95
Combined Sewer Overflows	Variable
Urban Runoff/Storm Sewers	51.70
Sediment Oxygen Demand	0.30
Nonpoint Source	153.55

Rivers / Streams

WATER CLASSIFICATION PROGRAM

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Maine has four water quality classes of rivers and streams: AA, A, B, and C (38 M.R.S.A. Section 465). Each classification assigns designated uses and water quality criteria (narrative and numeric), and may place specific restrictions on certain activities (Table 4-1 and 4-16) such that the goal conditions of each class may be achieved or maintained. Definitions of terms used in the classification are provided in 38 M.R.S.A. Section 466.

Class AA waters are managed for their outstanding natural ecological, recreational, social, and scenic qualities. Direct discharge of wastewater, dams, and other significant human disturbances are prohibited. Tiered aquatic life use goals in water quality standards direct that the biological condition of this classification be approximately Tier 1-2 on the Biological Condition Gradient (Davies and Jackson 2006; USEPA 2005)

Class A waters are managed for high quality with limited human disturbance allowed; aquatic life use goal approximately Tier 1-2 on the Biological Condition Gradient. Direct discharges are allowed but highly restricted.

Class B waters are general-purpose waters and are managed to attain good quality water; aquatic life use goal approximately Tier 3 on the Biological Condition Gradient. Well-treated discharges with ample dilution are allowed.

Class C waters are managed to attain at least the swimmable-fishable goals of the federal Clean Water Act and to maintain the structure and function of the biological community; aquatic life use goal approximately Tier 4 on the Biological Condition Gradient.

Table 4-17 Maine Water Quality Criteria for Classification of Fresh Surface Waters (38 MRSA §465)

	Dissolved Oxygen Numeric Criteria	Bacteria (<i>E. coli</i>) Numeric Criteria	Habitat Narrative Criteria	Aquatic Life (Biological) Narrative Criteria
Class AA	as naturally occurs	as naturally occurs	Free flowing and natural	No direct discharge of pollutants; <i>as naturally occurs</i> **
Class A	7 ppm; 75% saturation	as naturally occurs	Natural	<i>as naturally occurs</i> **
Class B	7 ppm; 75% saturation	64/100 ml (g.m.) or 236/100 ml (inst.)	Unimpaired	Discharges <i>shall not cause adverse impact</i> to aquatic life in that the receiving waters shall be of sufficient quality to <i>support all aquatic species indigenous to the receiving water without detrimental changes to the resident biological community.</i> **
Class C	5 ppm; 60% saturation 6.5 ppm (monthly average) at 22° and 24°F	126/100 ml (g.m.) or 236/100 ml (inst.)	Habitat for fish and other aquatic life	Discharges <i>may cause some changes</i> to aquatic life, provided that the receiving waters shall be of sufficient quality to <i>support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.</i> **

* "g.m." means geometric mean and "inst." means instantaneous level

** Numeric criteria in Chapter 579, Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams

Maine law requires that at least once every three years, the Department review the classification system and make recommendations to the Board of Environmental Protection for changes. The last triennial review occurred in 2002-03 when the Department conducted statewide workshops to obtain public input and proposals to change the management classification assigned to specific waterbodies. The Board held hearings that resulted in recommendations to the Maine Legislature for the upgrade of part or all of 75 rivers and streams. Sixty one segment upgrades were passed by the 2003 Legislature (P.L. 2003 Chapter 317) and the 14 remaining segments were passed in the next session. The next review of water quality classifications is currently underway (2008) for presentation to the Legislature in 2009. The current distribution of waters assigned to these four water quality classes is summarized in Table 4-18:

Table 4-18 Percent Distribution of River/Stream Water Classes

Class	Percent of Major* Mainstem River Miles	Percent of Total River and Stream Miles
AA	27.5 %	5.8 %
A	22.3 %	44.1 %
B	29.6 %	47.9 %
C	20.6 %	2.2 %

* Major mainstem rivers are rivers that have a watershed of 500 or greater square miles.

SUMMARY OF STATEWIDE RIVER AND STREAM ATTAINMENT STATUS

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The Integrated Assessment report to Congress requires the assignment of each Assessment Unit into one of five categories (Section 4-1, Assessment Methodology). A water is determined to be impaired if one or more of the uses assigned by its classification is not attained, as determined by the criteria assigned to that water class. An overall use attainment summary is provided in Tables 4-6 and 4-19. The 2008 use attainment assessment reports on assessment units amounting to 31,218 miles of rivers and streams that are tracked in the Assessment Database (ADB). Information on the status of individual assessment units may be found in Listings on Individual Waters, Appendix II, Categories 1-5.

Table 4-19 Summary of Changes to Surface Water Assessment Categories – 2006 to 2008

Rivers and Streams						
31,224 =Total Miles Assessed in 2006						
31,218 =Total Miles Assessed in 2008						
	2006 Miles in Category*	% of Total 2006 Assessed Miles	2008 Miles in Category**	% of Total 2008 Assessed Miles	% Change '06-'08	Change in Miles '06 - '08
Category 1	4,347	14	4,347	14	0	0
Category 2	25,283	81	25,288	81	0	+5
Category 3	380	1	379	1	0	-1
Category 4	209	<1	216	<1	0	+7
Category 5	1005	3	988	3	0	-17

*Single-Category Reporting miles, as generated by final 2006 cycle Maine ADB; note: miles may not compare exactly to miles recorded in the posted Final 2006 Integrated Report due to calculation differences

** Single-Category Reporting miles as generated by 2008 cycle Maine ADB

Category 1 (*Appendix II Category 1*). The 2008 assessment assigned 4,347 miles (14%) of rivers and streams to Category 1 (fully attaining all uses other than statewide mercury advisory as explained in Category 5C below). There has been no change in the amount of Category 1 waters since 2006. The Department has determined through monitoring and evaluation that large areas of the state should be included in this category where there is significant protection afforded by either state or private conservation efforts. Maine is fortunate to have entire sub-watersheds where there is no human habitation, few roads and only minimal disturbance (typically well managed forestry operations that are well buffered to protect water quality) or significant conservation ownership.

Category 2 (*Appendix II Category 2*). The 2008 assessment assigned 25,288 (81%) miles of rivers and streams to Category 2 (fully attaining all uses other than statewide mercury advisory as explained in Category 5C below). The increase was due to confirmation that some previously impaired waters are now attaining uses.

Category 3 (*Appendix II Category 3*). The 2008 assessment assigned 379 (1%) miles of rivers and streams to Category 3 (attainment undetermined except for statewide

mercury advisory as explained in Category 5C below). Most of these segments have been assigned to Category 3 because of inconclusive or conflicting monitoring data and the rest are in Category 3 because an initial evaluation of non-attainment requires re-sampling to confirm.

Category 4 (*Appendix II Category 4*). Category 4 impaired waters do not require the development of a Total Maximum Daily Load (TMDL). Category 4 has been administratively increased by 31,218 miles in 2008 because all freshwaters in Maine were moved from Category 5C (statewide mercury impairment) to Category 4A (TMDL approved) due to US EPA approval, on December 20, 2007, of a Regional Mercury TMDL for the Northeastern States. The 2008 assessment also assigned 216 (1.5%) miles of rivers and streams to Category 4 for non-mercury reasons. The approval of TMDLs for 3 impaired segments has increased the recorded miles in Category 4 by 7 miles as compared to 2006. Waters in Category 4 are placed into one of three subcategories:

- 4-A for waters that already have a TMDL that has been approved by EPA
 - 3 new segments and 5 Causes have been added to 4-A as compared to the 2006 Category 5,
 - 2 causes of non-attainment have been moved from 4A to Category 2- Fully Attaining
 - 1 new cause of impairment has been added to a previously 4A listed segment
- 4-B for waters where there is an enforceable mechanism in place to bring the water into attainment (e.g. new hatchery wastewater discharge license)
 - No new segments have been moved into Category 4-B from 2006 Category 5 waters ,
- 4-C for waters where there is no pollutant involved in the impairment problem
 - No new segments have been added to 4-C since 2006

Category 5 (*Appendix II Category 5*). Impaired waters that require the development of a Total Maximum Daily Load (TMDL) determination. The 2008 assessment assigned 988 miles (3%) of rivers and streams to Category 5 (impaired for one or more uses as well as statewide mercury advisory as explained in Category 5C below). This is a net decrease of 7 miles in Category 5.

Waters in Category 5 are placed into one of four subcategories:

- 5-A - waters impaired by pollutants; a priority for TMDL development,
 - 1 new cause of impairment listing, occurring in 1 previously listed segment (1.2 miles) has been added since the 2006 reporting cycle
 - **final draft TMDLs** for 16 impaired segments are scheduled to be submitted to EPA in fiscal year 2008. Additionally, reports on 4 impaired segments are in preparation to indicate that TMDL are not required (Royal estuary, Hermon and Hammond Lakes, Sabattus River)
- 5-B- waters impaired by no causes other than bacteria from Combined Sewer Overflows or other sources (except statewide mercury advisory as explained in Category 5C below); a lower priority for TMDL development.
 - 1 new segment has been added to 5B
- 5-C- waters impaired by atmospheric deposition of mercury (*Inactive Category due to EPA approved Regional Mercury TMDL*).
 - All freshwaters in Maine have an advisory for the consumption of fish due to the presence of mercury presumed to be from atmospheric deposition. A Regional Mercury TMDL has been approved by US EPA making these waters Category 4A.

- This Integrated Water Quality Monitoring and Assessment Report does not consider this statewide advisory in establishing other category listings.
- The advisory is based on probability data that a stream, river, or lake may contain some fish that exceed the advisory action level (Maine uses a lower action level of 0.2 mg/kg (edible portion) than that established by the USEPA). Any freshwater may contain both contaminated and uncontaminated fish depending on size, age, and species occurrence in that water. The advisory applies to all freshwaters because it may be impossible for someone eating a fish to be able to tell where the fish originated and whether or not it has a high level of mercury.
- 5-D for waters impaired by the residuals of “legacy” activities.
 - No new segments have been added to Category 5-D as compared to 2006.

NUMBER OF SEGMENTS THAT HAVE BEEN DELISTED.

Two river segments and 3 impairment causes have been moved to Category 2 from 2006 Impaired Waters List in this reporting cycle (see Table 8-1) and 3 segments and 5 causes have been moved from Category 5A to Category 4A due to approval of TMDLs.

As with any assessment of this kind, the identification of impaired waters or delisted waters cannot be considered complete but rather is a reflection of the findings at a particular point in time, relative to the level of monitoring effort expended by the agency and other cooperating contributors. While new and expanded monitoring has identified additional miles of impaired waters, this should not be interpreted as an indication that Maine’s waters are under some new or increasing threat. Rather, the State has been better able to assess its waters with improved monitoring tools and increased participation from cooperators. All of the new impaired listings appear to be due to conditions that have probably been in place for many years.

LISTING CAUSES, STRESSORS AND SOURCES OF IMPAIRMENT

Cause and stress information for rivers and streams is provided in Table 4-9. Sources of impairment are provided in Table 4-13. The way that DEP groups Cause/Stressor Types in the 2008 report is slightly different from 2004 and earlier reports due to the migration of data into the EPA Assessment Database. These differences by themselves do not reflect actual changes to causes, stressors or sources affecting Maine waters. The ADB should eventually enable increasingly accurate and consistent tracking of causes, stressors and sources as the data is captured and stored in subsequent years.

Causes (Table 4-9): The greatest number of impaired miles (647) is still due to toxics, especially legacy pollutants such as DDT, dioxin and PCBs. For most mainstem river segments that are affected by pulp and paper mill discharges, dioxins were listed in Category 4B in 2004. However, those same segments are now listed in Category 5D for legacy PCB and dioxin contamination of fish tissue. While absolute elimination of the production of dioxin secondary to the pulp and paper bleaching process has probably not been accomplished measurable differences are no longer detectable. Results of MDEP’s Above/Below test documented by 2005 that there was no *measurable* difference in dioxin concentrations in fish above and below each tested mill. Non-attainment of aquatic life criteria as determined by observations of biological effects accounts for 332 miles of impairment with oxygen depletion accounting for 398 miles.

Sources (Table 4-13): Atmospheric deposition of mercury affects all waters of the State and is the largest single source of pollution. Legacy pollutant sources such as dioxin and PCBs affect 364 miles. General agricultural NPS sources affect 330 miles. It is important to understand that miles attributed to causes and sources in Tables 4-9 and 4-13 may be listed more than once if a waterbody is subjected to several different types of disturbance.

MAIN STEMS OF MAJOR RIVERS

Most of the mainstem rivers are in good condition and are attaining their classification (mostly Class B or C quality, although significant segments of the St. John, Allagash, East and West Branches of the Penobscot, St. Croix, and Kennebec Rivers are Class AA and A). The primary impairment issue on the larger rivers is non-attainment of the Fish Consumption use, with segments of the Androscoggin, Kennebec, Penobscot, Salmon Falls and Sebasticook Rivers listed in either Category 4 or Category 5. Tissue monitoring studies have found legacy PCB and dioxin contamination in mainstem rivers. Two (2) of Maine's Combined Sewer Overflow (CSO) communities (Fort Kent and Kittery) have completed their CSO abatement projects and no longer have permitted CSOs. Calais has recently been permitted for several CSOs discharging to the St. Croix River. Needed monitoring has had to be re-scheduled for some mainstem river segments due to lack of appropriately low flow levels required for water quality modeling (e.g., Sandy River).

TOXICS

DIOXIN MONITORING PROGRAM

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Related Website: www.maine.gov/dep/dioxin/

- Please refer to the 2006 report for information on this subject. There have been no changes since the 2006 report.

SURFACE WATER AMBIENT TOXICS (SWAT) MONITORING PROGRAM

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Related Website: www.maine.gov/dep/blwq/docmonitoring/swat/index.htm

- Please refer to the 2006 report for information on this subject. There have been no changes since the 2006 report.

AQUATIC LIFE MONITORING

BIOLOGICAL MONITORING OF RIVERS, STREAMS AND BROOKS

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- Please refer to the 2006 report for information on this subject. There have been no changes since the 2006 report.

REPORTS OF FISH KILLS

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The Department of Environmental Protection documents all pollution-caused fish kills. For the 2006-07 reporting period, there were two documented fish kills. In September 2006, fish (predominantly brook trout) in Longfellow Brook in Caribou were killed from contaminated runoff from a fertilizer blending and distribution facility. A Consent Agreement and Enforcement Order was signed to remediate the source. In July 2007, a fish kill (predominantly minnows) occurred on Hart Brook in Lewiston presumably from urban runoff. No definitive source has been identified for that kill.

ACHIEVING COMPREHENSIVE ASSESSMENT OF ALL STREAMS: PROBABILITY-BASED DESIGN MONITORING

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- Please refer to the 2006 report for information on this subject. There have been no changes since the 2006 report.

Lakes / Ponds

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This section of the 2008 Integrated Report provides an update to information contained in the 2006 Integrated Report, a link to which can be found at: <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Information included in the 2006 report (pages 75 – 91) includes Physical Extent of lakes, Statutory Classification of lakes, Attainment of Classification and Attainment Evaluation Criteria for each Designated Use, how Attainment Status related to Listing Categories, past use of Probability-based Designs, a summary of Listing Category changes for 2006, Criteria Used to Change Listing Status, an overview of Maine's

Invasive Aquatic Plant program, and, Economic Contribution of lakes to Maine. Additional topics required under Section 314 addressed in the 2006 report include: Maine's definition of Significant Lakes, Trophic Status of Significant Publicly Owned Lakes, Lake Rehabilitation Techniques, Acid Effects on Lakes, Toxics in Maine lakes, trend analyses and climate considerations. A number of tables reappear in this report at the request of EPA Region I staff.

Monitoring of Maine lakes continues to include reliance on a strong volunteer-based program, the Maine Volunteer Lake Monitoring Program (www.mainevolunteerlakemonitors.org) as well as both targeted and probability based monitoring performed by state staff. The Lake Assessment Section participated in a US EPA Region I probability-based lake monitoring effort in 2006 as well as the National Lake Assessment effort in 2007.

ATTAINMENT OF CLASSIFICATION

The state designated a subset of the total population of lake as 'Significant Lakes' as requested by EPA under Section 314 in the early 1990s. Table 4-20 summarizes numbers and acreages for all lakes having an identification number as well as the subset of Significant Lakes.

Table 4-20 "All" and "Significant" Lake Category Information

Maine Lake Population Summary		
	Number	Acres
All Lakes	5,784 (100%)	986,952 (100%)
Significant Lakes	2,313 (40%)	958,977 (97%)

Designated uses actively assessed to determine classification attainment status are: Aquatic Life Support, Fish Consumption, Recreation In/On, and Drinking Water Supply (after disinfection/treatment). Table 4-21 summarizes how lake attainment status relates to specific Listing Categories used in the 2008 report.

Table 4-21 Summary of Listing Categories and Subcategories used in the 2008 Assessment of Maine lakes.

Listing Category	Category Summary
1	Attaining all standards
2	Attaining some standards; assumed to attain others
3	Attaining some standards; Insufficient / no data / info to determine if standard(s) are met for use that may be impaired
4a	TMDL complete
4b	Expected to meet standards
4c	Not impaired by a pollutant
5a	TMDL needed
5c	Regional TMDL needed due to airborne Hg deposition

Brief summaries of lakes by Listing Category follow. Lake specific changes are included in Chapter 8, "Summary of 2006 Category Changes" as well as in the appendix.

Category 1: Lake waters attaining all designated uses and water quality standards, and no use is threatened.

For the purposes of this assessment, lakes having no population in their direct watersheds have been listed in 'Category 1, Attaining all standards', with the exception of four lakes which are listed in category 4c, in non-attainment of the Aquatic Life Use (habitat) due to non-pollutant (hydrologic modification). The number of lakes listed in Category 1 is 2,857, totaling 295,443 acres. Waters are summarized by the 10-digit HUC (Hydrologic Unit Code) within which they are located (Appendix III, Category 1). No lakes have moved in or out of this Listing Category since the 2006 reporting cycle.

Category 2: Lake waters attaining some of the designated use(s), no use is threatened, and insufficient data or no data and information is available to determine if the remaining uses are attained or threatened (with presumption that all uses are attained).

The Department is highly confident that these waters attain the following designated uses: drinking water (after disinfection / treatment), recreation in/on the water, fishing (excluding fish consumption), and as habitat for fish and other aquatic life. Category 2 contains 2,881 lakes or 596,474 lake acres. Waters are summarized by the 10-digit HUC within which they are located (Appendix III, Category 2). One lake, Estes Lake has been moved from Category 3 into Category 2 due to improvements in water quality over the past 10 years primarily due to an upgrade in treatment of a municipal discharge. Evaluation of data indicates that these lakes are currently in attainment of their classified uses of Primary Contact and Aquatic Life Support.

Category 3: Lake waters with insufficient data and information to determine if designated uses are attained (with presumption that one or more uses may be impaired).

There are currently 10 lakes covering 17,777 acres listed in Category 3 (Appendix III, Category 3) all of which are designated as 'Significant'. These lakes may or may not be in attainment of 'aquatic life' and/or 'primary contact' criteria. The Department has data suggesting that these waters are meeting some designated use criteria but has evidence that suggests the lakes are 'borderline' with respect to another use. These lakes are the highest priority for data collection over the next few years. Estes Lake was moved out of Category 3 into Category 2 since the 2006 assessment.

Category 4: Lake waters that are impaired or threatened for one or more designated uses, but do not require development of a TMDL.

There are currently 28 lakes covering 73,600 acres listed in Category 4. These lakes fall into two subcategories: waters on which TMDLs have been completed (4A) and waters with impairments not caused by a pollutant (4C). Category 4A contains 23 lakes totaling 24,636 acres. This includes the addition of 5 lakes for which TMDL

studies have been completed since the 2006 report. Completed TMDL documents for these waters are posted on the DEP website at the following URL: www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm

Note: For the 2008 cycle the 4A category now includes all freshwaters in Maine that were listed in previous cycles in a narrative Category 5-C “Impairment caused by atmospheric deposition were of mercury” due to the Statewide fish consumption advisory due to mercury. On December 20, 2007 US EPA approved a Regional Mercury TMDL.

Five lakes (48,964 acres) continue to be listed in Category 4C, lake water impairment not caused by a pollutant. All of these lakes are in non-attainment of aquatic life (habitat) standards due to hydromodification (drawdown).

Category 5: Lake waters that are impaired or threatened for one or more designated uses by a pollutant(s), TMDL development is required.

Three sub categories have been designated under Category 5; however lakes have been listed in only one.

Category 5A includes 4 lakes (3,658 acres) all of which are designated as ‘Significant’ (lakes impaired by pollutants, and require a TMDL to be conducted by the State of Maine). These totals reflect the movement of 5 lakes to Category 4A. Appendix III, Category 5A lists these lakes, indicates target dates for TMDL completion and indicates development priority. Table 4-22 summarizes individual use support for lakes in Category 5A.

Table 4-22 Individual Use Support Summary for Lakes & Ponds (acres) in Category 5a (TMDL Needed)

Designated Use	Non-Attainment	Attainment
Drinking Water Supply (after disinfection/treatment)	0	3,658
Aquatic Life use Support	3,658	0
Fishing	0	3,658
Recreation In / On	944	2,714*
Navigation, Hydropower, Agriculture & Industrial Supply	0	3,658

Causes or Stressors resulting in non-attainment and Sources are summarized for all impaired waters in Tables 4-10 and 4-14 in Section 4-3 of this document. Tables 4-11 and 4-15 provide Causes / Sources organized by Listing Category.

For more information on Lake TMDL projects:

Contact: Dave Halliwell, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 287-2901 email: David.Halliwell@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docmonitoring/tmdl2.htm

VARIOUS TABLES AND ADDITIONAL UPDATES REGARDING MAINE LAKES

Section 314 requires a summary of trophic classification for Maine's 'Significant' lakes. This summary is compiled using the numerical criteria in Table 4-4 (also in 2006 report). Table 4-23 summarizes the trophic distribution of Maine Lakes.

Table 4-23 Trophic Status of Maine Lakes

Trophic Category	Significant Lakes		All Lakes	
	Number	Acres	Number	Acres
Assessed	1,739	926,954	1,910	928,275
Dystrophic	2	34	2	34
Eutrophic	590	150,922	660	151,354
Mesotrophic	1,022	664,498	1,119	665,340
Oligotrophic	125	111,500	129	111,547
Unknown	574	32,023	3,871	58,681

Table 4-24 summarizes techniques used to rehabilitate lakes.

Table 4-24 Lake Rehabilitation Technique Summary (Section 319 Projects)

Rehabilitation Technique
Watershed Treatments BMPs associated with Public & Private Road Management BMPs associated with Shoreline Erosion Control / Bank Stabilization
Other Lake Protection/Restoration Controls Public Information/Education Program/Activities

Section 314 requires reporting on Acid Effects on lakes. Maine is fortunate to be located a considerable distance from many sources of atmospheric deposition that result in acidification of surface waters. Some smaller headwater and seepage lakes having naturally low pH are likely slightly more acidic due to such atmospheric inputs but not to levels that have conclusively altered the biota or caused Maine to consider mitigation activities. Table 4-25 provides a summary of acidity assessment efforts in Maine lakes.

Table 4-25 Acid Effects on Maine Lakes

	Number of Lakes *	Acreage of Lakes *	%Acreage *
Assessed for Acidity	~1,150	~797,000	~80%
Impacted by High Acidity	~65	~750	~0.08%
Vulnerable to Acidity	Unknown	Unknown	Unknown

*Totals include all lakes in the state, not only 'significant' lakes

Table 4-26 summarizes source estimates for high acidity in Maine lakes.

Table 4-26 General Sources of Acidity in Acidic Maine Lakes

Source of Acidity	Percent of Acidic Lakes	Percent of All Maine Lakes*
Acid Deposition	60%	0.62%
Natural Sources	30%	0.31%
Combination of Acid Deposition and Natural Sources	10%	0.1%
Total	100%	1.3%

* Includes all lakes in the state, not only 'significant' lakes

INVASIVE AQUATIC PLANTS

Contact: John McPhedran, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 287-6110 email: John.McPhedran@SPAM-ZAPmaine.gov

or Milfoil@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/topic/invasives/index.htm

The Department's formal program to prevent spread and control existing infestations of invasive aquatic plants was in its sixth and seventh years in 2006 and 2007 respectively. Administration of the sticker program for motorized watercraft, the funding mechanism for the Department's work on invasive aquatic species, was amended by statute. Boaters with Maine-registered watercraft now pay automatically with their annual purchase of boat registration. This change assures compliance for boats registered in Maine and reduces processing cost, thereby generating increased revenue for program. Boaters with out-of-state registrations will still be required to purchase a boat sticker to affix next to their out-of-state registration.

As of February 2008, 28 inland bodies of water are infested with invasive aquatic plants, 25 infested with variable milfoil (*Myriophyllum heterophyllum*). Maine's hydrilla control program was in its fifth year in 2007 (*Hydrilla verticillata* identified in one lake). In 2007, 49,783 Courtesy Boat Inspections were conducted, a 23% increase over 2006 and 2005. One of two most recently documented infestations, an isolated plant in a Maine/New Hampshire border lake, was eradicated and removed from the State's infestation list due to rapid response by local lake stewards. Of heightened concern is the threat posed by the diatom *Didymosphenia geminate* (rock snot), documented in New Hampshire but not yet in Maine. This threat is spurring educational outreach by the Department to anglers and river users to prevent spread.

Estuaries / Ocean

Contact: David Courtemanch, Director, Division of Environmental Assessment (DEA), DEP BLWQ

Tel: (207) 287-3901 e-mail: Dave.L.Courtemanch@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/coastal.htm

BACKGROUND

Maine has three classes for the management of estuarine and marine waters: SA, SB, and SC. SA waters are managed for high water quality with limited human interference allowed. No direct discharges of pollutants, including those from finfish aquaculture, are allowed in SA waters. SB waters are general-purpose waters and are managed to attain good quality water. Well-treated discharges of pollutants that have ample dilution are allowed. SC waters are managed for the lowest water quality, but they must be fishable and swimmable as well as maintain the structure and function of the biological community. Well-treated discharges of pollutants are allowed in SC waters. Each class is managed for designated uses and each has dissolved oxygen, bacteria and aquatic life standards (see Table 4-32 below).

Table 4-27 Maine's Estuarine and Coastal Waters Classification Standards

Class	Designated Use	Dissolved Oxygen	Bacteria	Aquatic Life
SA	Habitat for fish and estuarine and marine life Recreation in and on the water Fishing Aquaculture (not finfish) Propagation and harvesting shellfish Navigation	As naturally occurs	As naturally occurs	As naturally occurs
SB	Habitat for fish and estuarine and marine life Recreation in and on the water Fishing Aquaculture Propagation and harvesting shellfish Navigation Industrial process and cooling water supply Hydroelectric power generation	Not less than 85% of saturation	Enterococcus not higher than geometric mean 8/100ml or instantaneous of 54/100ml from 5/15 to 9/30 Not exceed criteria of National Shellfish Sanitation Program for shellfish harvesting	Support all indigenous estuarine and marine species Discharge not to cause closure of shellfish beds
SC	Habitat for fish and estuarine and marine life Recreation in and on the water Fishing Aquaculture Propagation and restricted shellfish harvesting Navigation Industrial process and cooling water supply Hydroelectric power generation	Not less than 70% of saturation	Enterococcus not higher than geometric mean 14/100ml or instantaneous of 94/100ml from 5/15 to 9/30 Not exceed criteria of National Shellfish Sanitation Program for restricted shellfish harvesting	Maintain structure and function of the resident biological community

The areal distribution of the three marine classes is shown in Table 4-28 and Figure 4-5 below:

Table 4-28 Area and Percentage of Marine and Estuarine Waters in Each Classification

Class	Square Miles	Percentage
SA	211	7.41 %
SB	2,606	91.58 %
SC	29	1.01 %
Total	2,846	100.00 %

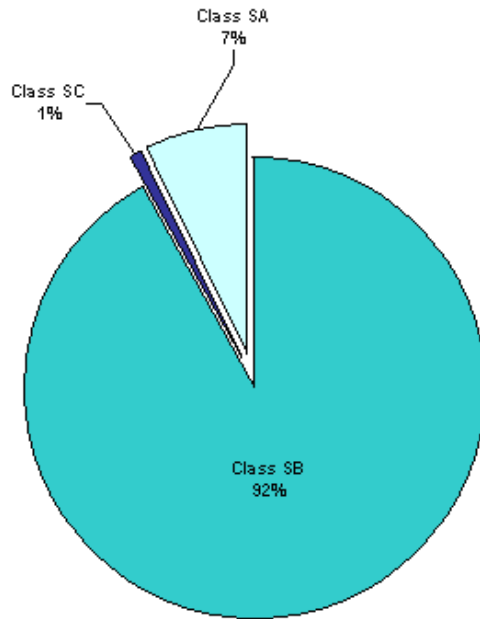


Figure 4-1 Percentage of Estuarine and Marine Waters in Each Classification

This chapter provides an assessment of the degree to which water quality supports the designated use defined by the State of Maine statutes for the protection of aquatic life. Designated uses in this chapter and in Chapter 7 (Public Health – Related Assessments) are divided into two broad use categories: protection of human health and protection of aquatic life. The protection of these uses will result in the protection of other uses (e.g. navigation, industrial process and cooling supply). Applicable monitoring results and attainment assessments are summarized within each of these two categories in this chapter as well as in Chapter 7.

SOURCES OF MONITORING DATA

The Maine Department of Environmental Protection (DEP), the National Coastal Assessment/University of Southern Maine, the Department of Marine Resources (DMR), the Casco Bay Estuary Project (CBEP), and a variety of volunteer monitoring groups such as the Spruce Creek Association monitor Maine’s coastal waters.

DMR monitors for indicators of human pathogens (e.g., fecal coliforms) and biotoxins (e.g., Paralytic Shellfish Poisoning). The purpose of DMR monitoring is to protect human health by managing shellfish harvest areas (see Chapter 7 of this report).

DEP monitors toxic contaminants in tissues and assesses water quality using data collected by DEP and other organizations. DEP also participates in the Gulf of Maine Council’s Gulfwatch Project that surveys toxic contamination in mussel tissue in the Gulf of Maine.

The Maine State Planning Office Coastal Program and University of Maine Cooperative Extension/Sea Grant are responsible for managing and coordinating the Maine Healthy Beaches Program (see Chapter 7 of this report).

The Casco Bay Estuary Project (CBEP), funded by EPA's National Estuary Program, monitors and also supports other monitoring efforts in the Bay, through Friends of Casco Bay (FOCB) and other entities and coordinates the National Coastal Assessment for the entire Maine coast with the assistance of Maine DEP.

The GoMOOS (Gulf of Maine Ocean Observation System) program provides data on the gulf that is collected from buoys, satellites and radar. Since all the buoys are located in offshore waters at present, the data are not used for this assessment. The data are useful in determining the signals coming from the Gulf rather than land. DEP would benefit from the placement of some new buoys closer to land in order to better monitor and understand near shore waters and land/water interactions.

Results from these various monitoring sources provide the basis for determining attainment of classification and designated uses. One of the biggest challenges ahead is to get all the data that is collected into a central location and into useable, universally-translatable formats.

SUMMARY OF STATEWIDE STATUS

This Integrated Assessment report requires the assignment of each Assessment Unit into one of five categories (see Methodology). Specific waters are determined to be impaired if they do not attain one or more of the uses assigned by their classification (as determined by the criteria assigned to that classification).

For this reporting cycle, the Maine DEP has elected to maintain the same listing for estuarine and marine waters as reported in the 2006 Integrated Report:

<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

There are several reasons for this. The 2006 report was delayed in submission and subsequently used more recent data than would have been available on April 1, 2006 reporting date. More recently, the Maine DEP has been engaged with DMR in revising the way that water quality data is reported including development of Assessment Units (similar to what is used in the ADB for freshwaters) and digitized maps all of which will make reporting more consistent and easier to track. These will be used in the 2010 report cycle. Overall use attainment summary for 2008 is provided below and in Table 4-8.

Category 1: The 2008 assessment assigns no estuarine and marine waters to Category 1 because there were no waters where all Classification Standards were monitored adequately in a waterbody segment to determine if standards were being met.

Category 2: The 2008 assessment assigns 2,685.17 (94.35%) square miles of estuarine and marine waters to Category 2 (fully attaining*).

Category 3: The 2008 assessment assigns 4.43 (0.16%) square miles of estuarine and marine waters to Category 3 (attainment undetermined*).

Category 4: The 2008 assessment assigns no estuarine and marine waters to Category 4 (impaired for one or more uses*).

Category 5: The 2008 assessment assigns 156.39 (5.50%) square miles of estuarine or marine waters to Category 5 (impaired for one or more uses*). This Integrated

Water Quality Monitoring and Assessment Report does not consider the statewide lobster tomalley consumption advisory that is in place due to the potential presence of PCBs and dioxin in all 2,845.99 square miles of Maine's coastal waters. Category 5 impaired waters require the development of a Total Maximum Daily Load (TMDL) determination. No TMDLs were completed for estuarine/marine waters since the 2006 report was completed. Waters are placed in one of four subcategories: 5-A for waters impaired by pollutants, 5-B-1 for waters impaired only by bacteria, 5-B-2 for waters affected only by Combined Sewer Overflows (CSO), 5-D for waters impaired by the residuals of "legacy" activities.

As with any assessment of this kind, the identification of impaired waters cannot be considered complete but rather is a reflection of the findings (to date) relative to the level of effort expended by the agency and other cooperating contributors.

* All estuarine and marine waters in Maine have an advisory for the consumption of shellfish (lobster tomalley) due to the presence of PCBs and dioxins. The advisory is based on probability data that shellfish (lobster tomalley) inhabiting estuarine or marine waters may exceed the advisory action level for these substances.

CAUSES AND SOURCES OF IMPAIRMENT IN CATEGORIES 4 AND 5

Cause and stress type information is provided in Table 4-12, while information on sources of impairment is provided in Table 4-16.

The general category of "toxics" is by far the cause/stressor that impairs the largest area of marine and estuarine waters in the State. In fact, the "toxics" subcategories of PCBs and dioxins impaired all 2,845.99 square miles of marine/estuarine waters that were assessed in 2008 due to the statewide lobster tomalley consumption advisory described in the previous section. After toxics, the second greatest impaired area (153.55 square miles) of estuarine/marine waters is due to bacterial contamination. By comparison, each of the other remaining general causes is responsible for impairing areas of a few square miles or less.

Industrial point sources have been the largest contributing source category for dioxin. Recently there has been no measurable difference in dioxin concentrations in fish above and below each mill. Though small, unmeasurable discharges still may be occurring these are not significant with respect to bioaccumulation in fish compared to the MCDC's Fish Tissue Action Level. Some industrial loads that are treated through municipal point sources are additional sources although pretreatment is required in most cases. These industrial sources account for all of the shellfish (lobster tomalley) consumption listed waters where dioxins remain the primary contaminant.

NATIONAL COASTAL ASSESSMENT: PROBABILITY-BASED MONITORING

Related Website: www.epa.gov/emap/nca/

The purpose of the National Coastal Assessment (NCA) is to estimate the current status of the condition of the nation's coastal resources on a regional and national basis using ecological indicators. The National Coastal Assessment is based on a probability-based, stratified sampling design. Stations were selected randomly to represent strata (regions) of similar characteristics e.g., Casco Bay, Long Island Sound, etc. Conclusions based on data from such programs are statistically valid for the strata, but are not necessarily representative of conditions at a particular station. The National

Coastal Assessment has not actively sampled the Maine coast since the last reporting cycle.

Please refer to page 95 of the 2006 Integrated Water Quality Monitoring and Assessment Report for information on the National Coastal Assessment.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

PROTECTION OF MARINE LIFE (DESIGNATED USE: HABITAT FOR FISH AND ESTUARINE / MARINE LIFE)

ATTAINMENT OF DISSOLVED OXYGEN STANDARDS

Four water body segments are listed as impaired waters (three in Category 5 and one in Category 4) because they do not attain state standards for dissolved oxygen. The reasons for non-attainment are varied and include natural factors such as benthic respiration and physical circulation factors, as well as potential loadings from point and nonpoint sources. The draft Royal River Waste Load Allocation Study recommends delisting the estuary for dissolved oxygen. The estuary will remain in Category 5 because of high bacteria counts and closure of the shellfishery. The draft Mousam River Waste Load Study indicates that the majority of oxygen loss is due to benthic respiration and circulation factors and that the Kennebunk treatment facility has only a very marginal effect. Upgrades are occurring at that facility and the estuary will be reevaluated after those occur. The upper New Meadows estuary and "Lake" (estuarine salinity) does not meet dissolved oxygen standards. The presumed cause is the partial impoundment on Old Route 1 at the Brunswick-West Bath town line. A modeling study is being conducted to better understand causes and determine solutions. The Piscataqua River estuary has a completed TMDL however implementation in ME and NH is incomplete.

Generally, data from various studies and volunteer monitoring show oxygen levels along the coast to be adequate to protect marine life. Some estuaries have oxygen levels that do not meet their classification criteria and is concluded that many of these instances where criteria are not attained are a result of natural processes. The Maine DEP is initiating a study in cooperation with the USEPA to assess benthic respiration in a number of high quality / least impacted estuaries to assess what expected background values may be.

CASCO BAY ESTUARY PARTNERSHIP

Contact: Director, Casco Bay Estuary Project (CBEP)

Tel: (207) 780-4820 e-mail: cbep@SPAM-ZAPusm.maine.edu

Related Website: www.cascobay.usm.maine.edu

The Casco Bay Estuary Partnership work focuses in five priority areas: habitat protection, toxic pollution, stewardship, clam flat and swimming beach health, and stormwater pollution.

Friends of Casco Bay (FOCB), with support from CBEP, has conducted the Citizens Water Quality Monitoring Program in the bay for the past twelve years. More than 100

citizen volunteers sample surface waters at 80 shore-based stations. They also assist FOCB professional staff with sampling at 10 profile stations located throughout Casco Bay. Measurements include temperature, salinity, pH, water clarity, and dissolved oxygen. The program was expanded to include measurements for chlorophyll fluorescence and dissolved inorganic nutrient concentrations.

Please refer to page 104 of the 2006 Integrated Water Quality Monitoring and Assessment Report for summary of the Casco Bay Estuary Partnership programs.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

CHAPTER 5 WETLANDS

Contact: Jeanne DiFranco, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 822-6359 email: Jeanne.L.DiFranco@SPAM-ZAPmaine.gov

Related Websites: www.maine.gov/dep/blwq/wetlands/index.htm

<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/index.htm>

Background

FEDERAL REGULATION

EPA Contact: Jeanne Voorhees, EPA Region I, Office of Ecosystem Protection

Tel: (617) 918-1686 email: voorhees.jeanne@SPAM-ZAPepa.gov

Related Website: (EPA) www.epa.gov/owow/wetlands/regs/

ACE Contact: Ruth Ladd, ACE New England Region, Regulatory Division

Tel: (978) 318-8818 email: ruth.m.ladd@SPAM-ZAPusace.army.mil

Related Website: (ACE) www.usace.army.mil/inet/functions/cw/cecwo/reg/index.htm

Lead Agencies: EPA Region I and the U.S. Army Corp of Engineers (ACE) – Maine Project Office

The Clean Water Act provides for wetland protection and regulation through a number of federal programs, most of which are administered by EPA. The Section 404 regulatory program is jointly administered by EPA and the U.S. Army Corps of Engineers. Key elements of the federal wetland protection framework are described in more detail in the Chapter 5 of Maine's 2006 Water Quality Assessment.

WETLANDS REGULATORY PROGRAM IN MAINE'S ORGANIZED TOWNS

Contact: Jeff Madore, DEP BLWQ, Division of Land Resource Regulation (DLRR)

Tel: (207) 287-7848 email: Jeff.G.Madore@SPAM-ZAPmaine.gov

Related Website: (NRPA) www.maine.gov/dep/blwq/docstand/nrpapage.htm

Maine DEP regulates wetland alterations in the organized townships under the Natural Resources Protection Act 38 M.R.S.A., Section 480-A et seq. (NRPA) and Chapter 310 Wetlands and Waterbodies Protection Rules. Additional information on the DEP wetlands regulatory program is available at the above web site.

New Initiatives:

As of September 1, 2007, *significant vernal pool habitat* is protected by law under the Natural Resources Protection Act (NRPA). Vernal pools or "spring pools" are shallow depressions that usually contain water for only part of the year. "Significant vernal

pools" are a subset of vernal pools with particularly valuable habitat. More information is available on the DEP web site at:

http://www.maine.gov/dep/blwq/docstand/nrpa/vernalpools/fs-vernal_pools_intro.htm .

Recognizing the value of specific bird habitats to the State's environment and quality of life, the Maine Legislature determined that these habitats warranted protection under the Natural Resources Protection Act (NRPA) in 1988 as "Significant Wildlife Habitats". After 10 years of data collection and 2 years of legislative review to complete the development of habitat screening maps and additional rulemaking, the DEP began regulating activities "in, on or over" valuable waterfowl and wading bird habitat and shorebird feeding and roosting areas on June 8, 2006. Additional modifications to these regulations were effective June 14, 2007. Copies of the rules that define these habitats and establish licensing criteria ("Chapter 335, Significant Wildlife Habitat") are available by mail or on the internet at MaineDEP.com under keyword "NRPA." A DEP fact sheet is also available at http://www.maine.gov/dep/blwq/docstand/nrpa/birdhabitat/bird_habitat.htm .

WETLANDS REGULATORY PROGRAM IN UNORGANIZED TERRITORIES

Contact: Marcia Spencer-Famous, Senior Planner, DOC LURC, Planning & Administration Division

Tel: (207) 287-4933 email: Marcia.Spencer-Famous@SPAM-ZAPmaine.gov

The Maine Land Use Regulation Commission (LURC) uses a land use planning approach to regulate wetlands in unorganized portions of the State, in accordance with the provisions of Title 12, Sections 681-689 (Use Regulation) and Chapter 10 of LURC rules (Land Use Districts and Standards). Details about LURC's wetlands regulatory program may be found in Chapter 5 of Maine's 2006 Water Quality Assessment, or by contacting Marcia Spencer-Famous.

Development of Wetland Water Quality Standards

Contact: Jeanne DiFranco, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 822-6359 email: Jeanne.L.DiFranco@SPAM-ZAPmaine.gov

Related Websites: (EPA)

(Wetland Water Quality) www.epa.gov/owow/wetlands/regs/quality.html

(General Water Quality Standards) www.epa.gov/ost/standards/

In Maine, wetlands are included in the definition of "Waters of the State" contained in the Protection and Improvement of Waters Act, 38 M.R.S.A. Section 361-A, and are further defined as either "fresh surface waters" or "estuarine and marine waters". As waters of the State, wetlands are subject to all pertinent provisions of the Maine Water Classification Law, including designated uses, narrative biological criteria and the State's anti-degradation policy. The Maine DEP Biological Monitoring Program is currently developing wetland-specific biological criteria based on tiered aquatic life uses to refine the State's capability to evaluate wetland condition. DEP is also in the process of clarifying how existing criteria apply to wetlands. This will allow the Department to report on attainment status for wetlands in the future.

Integrity of Wetland Resources

Contact: Jeanne DiFranco, DEP BLWQ, Division of Environmental Assessment (DEA)

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WETLAND MONITORING AND ASSESSMENT

Related Website:

<http://www.maine.gov/dep/blwq/docmonitoring/biomonitoring/index.htm>

Annual Monitoring:

The Maine wetland biomonitoring initiative has been incorporated into DEP's Biological Monitoring Program in the Division of Environmental Assessment. The Biomonitoring Program is responsible for implementing core wetland program elements related to monitoring and assessment and water quality standards as required under the Clean Water Act. The program also addresses State priorities in the Maine Wetland Conservation Plan and DEP Performance Partnership Agreement. Wetland biomonitoring is coordinated with the State's river and stream biomonitoring program using a 5-year rotating basin schedule.

DEP conducts wetland site assessments using biological monitoring, which includes sampling for aquatic macroinvertebrates, epiphytic algae and phytoplankton. Associated physical and chemical data are obtained through field measurements and analysis of water samples. Habitat descriptions, Cowardin classification, hydrogeomorphic setting, substrate, and dominant plant species/community type are also documented. In addition, the DEP Biomonitoring Program uses a Human Disturbance Score as part of a rapid assessment of wetland condition. This information is used to characterize relative levels of human disturbance for biological metric development, identify sources and causes of degradation, and verify that candidate reference wetlands are actually minimally-disturbed.

In 2006, DEP conducted biological monitoring and assessment of 22 wetland stations in the Penobscot, St. Croix and down east coastal watersheds. DEP staff partnered with monitoring staff of the Penobscot Indian Nation and the Passamaquoddy Tribe to identify sites of tribal concern in the target watersheds. The DEP Biomonitoring Unit provided training in wetland monitoring methods for both tribes, and tribal members assisted the Unit with wetland field work. DEP also collaborated with staff of the Moosehorn and Sunhaze Meadows National Wildlife Reserves to select wetland biomonitoring stations within reserve lands. In 2007, the Biological Monitoring Program conducted monitoring and assessment of 23 wetland stations in the Kennebec River watershed.

Extent of Wetland Resources

WETLAND LOSS TRACKING IN MAINE'S ORGANIZED TOWNS

Contact: Mike Mullen, DEP BLWQ, Division of Land Resource Regulation (DLRR)

Tel: (207) 287-4728 email: Mike.Mullen@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/wetlands/threats.htm

Maine DEP tracks permitted wetland losses and mitigation in the organized townships through an application tracking system. When applications for any wetland alterations are logged in, the amount of fill or area to be altered is also entered by wetland type and geographical location. This system enables the Department to monitor and report on annual wetland losses. Wetland mitigation and DEP permitted impacts for 2006 and 2007 are summarized in Tables 5-1 and 5-2 below.

Table 5-1 Wetland Mitigation Totals in the Organized Townships

Source: Maine DEP Wetland Loss Tracking System

Area of Mitigation (Acres) – 2006 (1/1/2006-12/31/2006)					
Wetland Type	Creation	Enhancement	Preservation	Restoration	Total
Forested	1.2	0	66.23	0.57	68.0
Other/Mixed	1.0	4.27	124.7	1.17	131.14
Emergent	0	3.5	6.3	0	9.8
Scrub-shrub	0	0	0	0	0
Open water	0	0	0	0	0
Riverine	0	0	2.2	0.01	2.21
Wet Meadow	0.84	1.43	0	3.3	5.57
Upland	0	0	62.58	0	62.58
Intertidal (other)	0	0	0	0	0
Subtidal (other)	0	0	0	0	0
Total	3.04	9.2	262.01	5.05	279.3

Table 5-1 (continued). Wetland Mitigation Totals in the Organized Townships.

Area of Mitigation (Acres) – 2007 (1/1/2007-12/31/2007)					
Wetland Type	Creation	Enhancement	Preservation	Restoration	Total
Forested	15.7	1.26	65.64	2.54	85.14
Other/Mixed	0	3.49	151.33	3.6	158.42
Emergent	0	0	15.0	0	15.0
Scrub-shrub	0.46	0	32.5	0	32.96
Open water	0	0	16.94	.01	16.95
Riverine	0	0.02	0	0	0.02
Wet Meadow	0	1.02	0	0	1.02
Upland	0	0.04	169.93	0	169.97
Intertidal (other)	0	0	0	.04	0.04
Subtidal (other)	0	0	0	0	0
Total	16.16	5.83	451.34	6.19	479.52

Table 5-2 Permitted Wetland Mitigation Totals in the Organized Townships

Source: Maine DEP Wetland Loss Tracking System

Area Impacted (Acres) - 2006 (1/1/2006-12/31/2006)										
Wetland Type	Cranberry permit		Full NRPA permit		Tier I		Tier II		Total	
	Filled	Altered	Filled	Altered	Filled	Altered	Filled	Altered	Filled	Altered
Emergent	0	0	1.0	0	0	0	0	0	1.0	0
Forested	0	0	11.7	0	12.27	0.89	5.28	0	29.25	0.89
Great Pond	X	X	0	0	X	X	X	X	0	0
Intertidal (mudflat)	X	X	0.03	0.14	X	X	X	X	0.03	0.14
Intertidal (other)	X	X	0.07	0.62	X	X	X	X	0.07	0.62
Intertidal (vegetated)	X	X	0.04	0.14	X	X	X	X	0.04	0.14
Open Water	0	0	0	0.15	0	0	0	0	0	0.15
Other/Mixed	0	0	11.58	0.08	2.06	0.46	2.08	0	15.72	0.54
Peatland	0	0	0	0	0	0	0	0	0	0
Riverine	X	X	0.04	0.06	X	X	X	X	0.04	0.06
Scrub-shrub	0	0	2.5	1.97	1.65	0.47	1.11	0	5.26	2.44
Subtidal (aquatic bed)	X	X	0.35	1.91	X	X	X	X	0.35	1.91
Subtidal (other)	X	X	0	1.29	X	X	X	X	0	1.29
Wet Meadow	0	0	0.22	0.56	1.57	0	0.45	0	2.24	0.56
Upland	0	0	0	0.02	0	0	0	0	0	0.02
Total	0	0	27.53	6.94	17.55	1.82	8.92	0	54.0	8.76

Table 5-2 (continued). Permitted Wetland Impacts in the Organized Townships.

Area Impacted (Acres) - 2007 (1/1/2007-12/31/2007)										
Wetland Type	Cranberry permit		Full NRPA permit		Tier I		Tier II		Total	
	Filled	Altered	Filled	Altered	Filled	Altered	Filled	Altered	Filled	Altered
Emergent	0	0	0.09	0	0.39	0.02	0.34	0	0.82	0.02
Forested	0	0	19.74	0.16	13.81	0.37	7.4	4.46	40.95	4.99
Great Pond	X	X	0.02	0.15	X	X	X	X	0.02	0.15
Intertidal (mudflat)	X	X	0.48	0.46	X	X	X	X	0.48	0.46
Intertidal (other)	X	X	0.38	0.65	X	X	X	X	0.38	0.65
Intertidal (vegetated)	X	X	0.1	0.04	X	X	X	X	0.1	0.04
Open Water	0	0	0	1.39	0.04	0	0	0	0.04	1.39
Other/Mixed	0	0	11.17	22.49	3.02	0.55	2.39	0	16.58	23.04
Peatland	0	0	0	0	0	0	0	0	0	0
Riverine	X	X	0.18	0.09	X	X	X	X	0.18	0.09
Scrub-shrub	0	0	14.85	5.66	2.68	0.3	0.8	0	18.33	5.96
Subtidal (aquatic bed)	X	X	0	2.02	X	X	X	X	0	2.02
Subtidal (other)	X	X	0	0.23	X	X	X	X	0	0.23
Wet Meadow	0	0	0.19	0	3.26	0.62	2.01	0	5.4600	0.62
Upland	0	0	0.03	0	0	0	0	0	0.03	0
Total	0	0	47.23	33.34	23.2	1.86	12.94	4.46	83.37	39.66

X = Tier review not available for projects located in these resources

WETLAND LOSS TRACKING IN MAINE'S UNORGANIZED TERRITORIES

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The Maine Land Use Regulation Commission's (LURC) Geographically Oriented Action Tracker (GOAT) system incorporates the wetlands loss tracking database into LURC's overall permit tracking system. Previously, wetland loss data were kept in a separate database. In addition to the wetlands loss data such as wetland type, size of area lost, etc, GOAT allows wetland loss to be tied to the tax lot using GIS. Because of staff and budget cuts, wetlands loss tracking up until now has been inconsistent, making reporting of losses less than complete. LURC anticipates in coming years to be able to generate realistic reports on wetland losses in the unorganized townships and territories.

CHAPTER 6 GROUNDWATER MONITORING & ASSESSMENTS

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Overview

Maine's groundwater may be threatened by contamination, particularly in unforested areas, which comprise approximately 11% of the State. Important sources of groundwater contamination in Maine include disposal activities such as landfills and septic systems, leaking storage facilities, agriculture, and sites contaminated with spilled hazardous materials or by previously unregulated activities.

Generally, the ground water supply in Maine is adequate. The total withdrawal of ground water by all water users is less than one percent of the annual ground water recharge each year. The remaining annual ground water recharge is lost through evapotranspiration or discharges to ponds, lakes, rivers, and streams. Seasonal variations in water tables can lead to local ground water shortages. The Maine Drought Task Force (convened by the Maine Emergency Management Agency) publishes information on Maine ground water and surface water levels at the following website: www.maine.gov/mema/drought

Ground water is withdrawn from three basic types of aquifers in Maine: unconsolidated glaciofluvial deposits (stratified drift or sand and gravel aquifers), till, and fractured bedrock. The stratified drift deposits are the most favorable for development of large volume water supply wells, but these deposits are limited in size and distribution (less than about 10% of the state). Discontinuous bedrock aquifers underlie the entire state and are used for domestic, commercial, industrial and agricultural purposes, and for small public supplies such as schools, restaurants, and summer camps. Wells in till do not generally yield large quantities of water and are most often used for individual domestic water supplies.

Background

The protection of Maine ground water is an issue of concern at all levels of government. Serious ground water pollution problems that have occurred throughout the State and elsewhere have heightened the need for protecting ground water supplies. A few municipalities and regional planning agencies have conducted ground water quality assessment studies, but programs for comprehensive assessment of the quality of ground water resources are needed. Maine's ground water protection programs (Table 6-1) emphasize three areas of effort:

1. State interagency coordination of ground water programs;
2. Assessment of ground water protection problems, including enhancement of the Environmental Groundwater Assessment Database (EGAD); and
3. Statutory changes and building upon implemented state ground water protection programs to increase ground water protection and risk reduction.

Please refer to page 124 of the 2006 Integrated Water Quality Monitoring and Assessment Report for a table of State groundwater protection programs. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Assessment of Ground Water Quality

In Maine, ground water is classified by its suitability for drinking water purposes. Under the Maine Water Classification Program, ground water is classified as either potable (GW-A) or unpotable (GW-B). Water is unpotable when the concentrations of chemical compounds detected exceed either the Maximum Contaminant Levels (MCL) or the Maximum Exposure Guidelines (MEG) as defined in the Rules Relating to Drinking Water administered by the Maine Department of Health and Human Services (DHHS). Although there are many localities where ground water is unpotable and highly contaminated, no ground water is currently classified GW-B. The state is not currently attempting to designate non-attainment areas.

AQUIFER CHARACTERIZATION ACTIVITIES

Contact: Tom Weddle, DOC BGNA, Maine Geological Survey, Applied Geology Division Director, Hydrogeology Section

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Related Websites: Aquifer Fact Sheet

www.maine.gov/doc/nrimc/mgs/explore/water/facts/aquifer.htm

Aquifer Mapping: www.maine.gov/doc/nrimc/mgs/pubs/series/descrip-aq.htm

The Maine Geological Survey (MGS) is at the "average characteristics" stage in characterizing the physical and chemical attributes of the State's stratified drift aquifers. While site specific data do exist for some aquifers (primarily in the vicinity of ground water resource evaluation projects and contamination sites), complete physical pictures of most aquifer systems do not exist. Hard data on the exact natural chemical processes controlling ground water chemical evolution that occur along a flow path in sand and gravel aquifers are also lacking. MGS has some ambient water quality data but has not yet fully characterized any particular aquifer system.

Please refer to page 126 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further discussion of aquifer characterization activities. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

OVERVIEW OF GROUND WATER CONTAMINATION SOURCES

Most ground water contamination in Maine originates from nonpoint source pollution rather than point source pollution. The following discussion focuses primarily on nonpoint contamination sources that appear to be responsible for most ground water contamination in the State: agriculture, hazardous substance sites, spill sites, landfills, leaking underground storage tanks, septic systems, and shallow well injection. Please refer to the 2006 report beginning on page 127 for additional background information on other sources of contamination, and for additional information on the sources listed above. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Petroleum Storage Tanks and Product Spills

UNDERGROUND TANKS

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Related Websites:

(General Information) www.maine.gov/dep/rwm/ust/

(Rules for UST Facilities) www.maine.gov/sos/cec/rules/06/096/096c691.doc

LEAKING UNDERGROUND TANKS AND DRINKING WATER WELLS

The Leaking Underground Storage Tank (LUST) Remediation Priority List tracks clean-up sites and provides an objective scoring system to determine which sites receive scarce clean-up dollars. In general, the higher the score, the more quickly resources are allocated to clean up a site. Table 6-1 shows the number of sites placed on this Priority List and the change since the previous 305b report.

Table 6-1 LUST Remediation Priority Sites – Number of Sites as of Feb 2008

Total Number of Sites Since 1994	Number of Sites Closed	Number of Active Sites
1711	1269	442
Numerical Change and Percent Change from 2 years ago (previous 305b report)		
355 / 26% increase	210 / 20% increase	145 / 49% increase

The sites on the priority list are limited to those contaminated by petroleum products (as opposed to all hazardous chemicals and all hazardous wastes), but it is not limited to USTs. Many of the sites on the priority list are home heating oil tanks. Which are typically aboveground storage tanks (ASTs). Table 6-2 shows the number of private water wells and public water supplies contaminated by petroleum products or threatened with contamination by petroleum products as of February 2008. Note that one active site can contaminate or threaten more than one well.

Table 6-2 Current (February 2008) LUST Remediation Priority Sites – Contamination Summary

Number of Contaminated Wells*	Number of Contaminated Public Water Supplies	Number of Threatened Wells*	Number of Threatened Public Water Supplies
277	15	659	30
Numerical Change and Percent Change from 2 years ago (previous 305b report)			
-29 / 9% decrease	-18 / 55% decrease	+200 / 44% increase	-6 / 17% decrease

* Does not include public water supplies.

ABOVE GROUND STORAGE TANKS

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Related Website: www.maine.gov/dep/rwm/abovegroundtanks

ABOVE GROUND STORAGE TANK SPILL INFORMATION

Maine averages over one heating oil spill per day from ASTs at single family residences (See Figure 6-1). One reason for this statistic is that ASTs are commonly used in Maine. The 2000 U.S. Census figures show that 80% of Maine households are heated with oil. The vast majority of these households have 275 gallon ASTs located either in the basement or outside the residence.

Please refer to page 128 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on aboveground storage tanks in Maine. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

NEW LEGISLATION REQUIRES THE REGISTRATION OF UNDERGROUND PIPING THAT IS CONNECTED TO ABOVEGROUND MOTOR FUEL TANKS

In 2006, the Maine Legislature adopted a law that establishes new requirements for facilities with aboveground tanks storing motor fuel (gasoline, diesel, biodiesel, aviation gasoline, jet fuel, gasohol or other fuels used in the operation of a vehicle or motor engine) and that are connected to underground piping. The law establishes annual registration and annual inspection requirements very similar to those of USTs for this class of ASTs.

All motor fuel ASTs (except for diesel tanks) with underground piping must be registered by 1 January 2007 and be inspected by 1 July 2007. Diesel tanks have an extra 2 years to meet these requirements. (Register by 1 January 2009, and inspect by 1 July 2009.) Further, by 1 January 2011, all pre-June 24, 1991 underground piping systems at all motor fuel ASTs must meet the current DEP's leak detection standards. This closes an important loophole that allowed pre-June-1991 underground piping, such as single wall, pressurized piping, to remain in the ground. As of the end of 2007, 127 AST facilities with underground piping storing motor fuel (not including diesel fuel) have registered their facilities with DEP; 72 of these have submitted the required annual inspection.

SPILL PREVENTION, CONTROL & COUNTERMEASURES PROGRAM FOR ABOVE GROUND TANKS

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Related Website: www.maine.gov/dep/rwm/spcc/

Extension of Maine's SPCC Program

In 2005, the Maine Legislature made permanent legislation granting the DEP jurisdiction to enforce the federal Spill Prevention Control and Countermeasures (SPCC) regulations (40 CFR Part 112) for facilities that “market and distribute oil to others.” The state SPCC program’s jurisdiction is comprised primarily of retail gas stations and bulk plants, with a smaller component of airports and marinas. The State SPCC statute also mandated that the DEP provide education and outreach to affected facility owners to encourage their compliance with the federal SPCC rules.

Please refer to page 129-130 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on the SPCC Program.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Oil or Hazardous Materials Spills

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Related Websites: (Database Reports) www.maine.gov/dep/rwm/data/index.htm

(2004 Spill Report)

www.maine.gov/dep/rwm/publications/pdf/2004statisticalreportfinal.pdf

The DEP BRWM Response Division responded to approximately 2,968 reports of oil or hazardous material events between January of 2006 and December of 2006. Of these events, 467 do not have completed reports and, therefore, are not included in this discussion. An estimated 86% of these responses involved discharges of petroleum products to soil and/or groundwater. During this period, response services personnel discovered over 39 wells that had been contaminated from these spills. Due to further investigation and report completion, these figures are subject to change. Table 6-3 provides information on the 2,501 spills that had completed spill reports.

Table 6-3 Oil and Hazardous Materials Spills – January 2006 to December 2006

Spill Location Type	Percent of Total Spills	Number of Spills	Number of Wells Impacted
Business	24.91%	623	6
Government	5.92%	148	0
Residential	25.43%	636	20
School	1.44%	36	0
Terminal	12.44%	311	11
Transportation System	15.35%	384	0
Utility	10.40%	260	0
Other	4.12%	103	2
Total	100%	2,501	39

Please refer to page 130 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on oil spill reporting in Maine.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Agriculture

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Related Website: www.maine.gov/agriculture/narr/compliance.html

In 2002, the total estimated cropland in Maine was 536,839 acres. The agricultural community uses chemicals for pest control and weed eradication; in addition, many farmers apply chemical fertilizers and manure to their agricultural lands. These are all major potential sources of ground water contamination. The major areas of chemical application include potato fields in Aroostook County, blueberry barrens in Hancock and Washington Counties, and apple orchards and forage cropland in Central Maine. Pesticides and nitrates are the main categories of agricultural ground water contaminants.

MAINE'S NUTRIENT MANAGEMENT LAW

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Related Website: <http://www.maine.gov/agriculture/narr/nutrientmanagement.html>

Please refer to page 131 of the 2006 Integrated Water Quality Monitoring and Assessment Report for more information on the Maine Nutrient Management Program. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Impacts of the Law: Implementing nutrient management on farms can better protect ground and surface water. By applying manure and other nutrients only in the amounts needed for crop production and in a way that will consider nearby sensitive resources, fewer nutrients will leave the site and impact water quality. Studies of Maine farms where nutrient management practices have been implemented show that water quality within a watershed can be significantly improved.

PESTICIDES

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Related Websites: www.maine.gov/agriculture/pesticides/water/index.htm

<http://www.maine.gov/agriculture/pesticides/pdf/06rptGWhexazinone.rtf>

Pesticides can infiltrate soils and reach aquifers as a result of applications to croplands, forests, rights of way, home lawns, etc., and also from accidental spills, leaks, or improper disposal.

Ground water monitoring as described in Maine's Hexazinone State Management Plan is being continued. Approximately 50 private drinking water wells within ¼ mile of blueberry fields are currently being sampled. Results for monitoring from 1994-2006 are summarized in Table 6-4, below:

Table 6-4 Hexazinone Monitoring - 1994 through 2006

Sampling Results	Spring 1994	Spring 1998	Spring 2002	Spring 2006
Total Number of Samples Collected	20	42	49	46
Number of Positive Detections	15	18	29	32
Percentage with Positive Detections	75%	42.8%	59.2%	69.6%
Mean Concentration*(ppb)	1.08	0.41	1.45	.98
Median Concentration (ppb)	0.31	ND	0.43	.34
Highest Reading (ppb)	5.97	2.15	11.41	8.43

*For statistical purposes only, mean concentration was calculated assuming that non detections (ND) were equal to half of the limit of quantification (LOQ). LOQ = 0.1 ppb for 2002 samples.

Please refer to pages 132-133 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on pesticides in groundwater.
<http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Landfills

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and Ted Wolfe, DEP BRWM, Division of Solid Waste Management

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Related Website: www.maine.gov/dep/rwm/solidwaste/index.htm

The Maine Department of Environmental Protection is directed by statute to regulate the location, establishment, construction, expansion and operation of all solid waste facilities in the state, including landfills.

ACTIVE LANDFILLS

Related Website: www.maine.gov/dep/rwm/data/landfillactive.htm

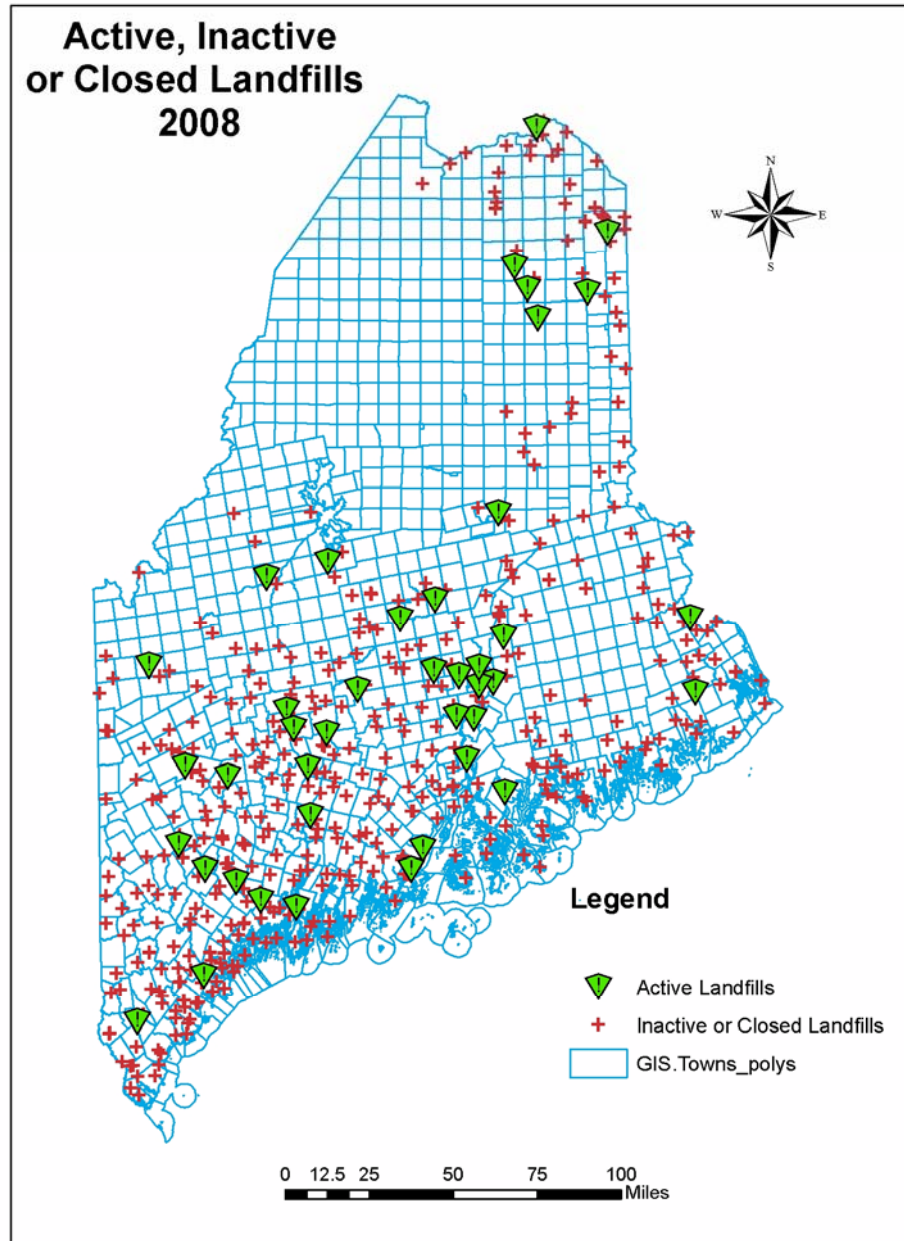
There are currently 50 active, licensed landfills in the state of Maine (Figure 6-1).

INACTIVE LANDFILLS

A total of 415 municipal landfills have been identified in the state. As of June 2007, 389 of these landfills have been closed and capped (Figure 6-1).

Please refer to pages 133-136 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on Maine landfills and residual land applications. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Figure 6-1 Active and Inactive Landfills in Maine



Road Salt

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Related Website: (Rules – Chapter 574) www.maine.gov/dep/blwq/574final.pdf

(Sand and Salt Piles) www.maine.gov/dep/blwq/docstand/sandsalt/index.htm

DEP is actively involved with siting of new sand-salt buildings and piles and continues to investigate contamination from sand-salt piles on a case-by-case basis. DEP's Sand-Salt Storage Area Rule (Chapter 574) prohibits siting of new sand-salt storage areas on significant sand and gravel aquifers, within source water protection areas of public water supplies and within 300 feet of a private domestic well. MDOT continues to handle complaints related to sand-salt piles that they operate, and roads they maintain.

Federal Facilities, Superfund and Hazardous Substance Sites

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Related Websites: (Maine DEP Information) www.maine.gov/dep/rwm/rem/index.htm

(Federal EPA Information) www.epa.gov/ebtpages/cleasuperfund.html

As of January 31, 2008, DEP has identified 1388 potential hazardous substance sites & closed landfills in Maine. The Division of Remediation investigates and mitigates the risk posed to public health and the environment from these sites. The Department may undertake the investigation and clean-up themselves, but more often compels potential responsible parties to undertake the work, through either the states uncontrolled sites program (for smaller sites) or via one of two federal programs: the federal RCRA program for recently operated sites, or the CERCLA program (the federal Comprehensive Environmental Response and Comprehensive Liability Act, aka Superfund) at sites where operators are not longer viable. Additionally, many sites are investigated and remediated under one of two voluntary programs: the Brownfields Program, which partially funds the work with federal dollars, and Maine's Voluntary Remedial Action Program (VRAP) or. The table below shows the number of sites within each program, and the stage of investigation and remediation of the sites. Please note that 171 sites are covered under more than one program in Table 6-5 below.

Table 6-5 Numer of sites in various Division of Remediation programs

Site Status	Number of sites by Program*							
	BROWN FIELDS	FEDERAL FACILITIES	LANDFILL CLOSURE	OTHER	RCRA	SUPER FUND	UN-CONTROLLED SITES	VRAP
In Review	6	20	0	1	1	0	183	42
Investigation Needed	3	3	12	0	0	1	11	11
Investigation in Progress	45	5	0	1	0	1	20	2
Investigation Complete	11	0	0	0	0	0	1	2
Remediation Needed	8	0	13	0	0	0	10	16
Remediation Underway	9	7	0	0	1	10	19	29
Operation and Maintenance	0	0	378	0	4	3	64	9
No Further Action Needed	27	16	3	1	1	0	84	432
Referred to Other Programs	0	2	0	0	0	0	18	2
Status Unknown	0	0	5	0	1	0	5	0
Total	109	53	411	3	8	15	415	545

*note that 171 sites are covered under more than one program

Resource Conservation and Recovery Act (RCRA) Sites

Contact: Stacy Ladner, DEP BRWM, Division of Oil and Hazardous Waste Facilities Regulation (OHWFR)

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Related Website: www.maine.gov/dep/rwm/hazardouswaste/index.htm

The DEP currently lists approximately 90 sites with non-interim Resource Conservation & Recovery Act (RCRA) licenses and 60 sites with interim licenses. Over 70 sites are under investigation for possible ground water or surface water contamination. Forty sites listed under RCRA have ground or surface waters that have been contaminated by discharges of hazardous substances. Twenty-three of these 40 facilities have ongoing, active remediation.

Septic Systems

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Related Website: www.maine.gov/dhhs/eng/plumb/index.htm

The Department of Health and Human Services, Maine Center for Disease Control and Prevention, has regulated onsite sewage disposal since 1926. This responsibility rests with DHHS because the treatment and disposal of human sanitary waste has been historically considered a public health issue. The Subsurface Wastewater Program within the Division of Environmental Health promulgates and administers the Subsurface Wastewater Disposal Rules. The Program also maintains microfiche copies of all plumbing and subsurface wastewater permits that have been issued statewide from 1974 to the present. During the 2006 fiscal year, the Program processed 12,000 internal plumbing and 10,000 subsurface wastewater permits.

NITRATES AND SEPTIC SYSTEMS

The Health and Environmental Testing Laboratory (HETL) database contains the results of water tests done on private wells. This database provides the largest sample of private well nitrate concentrations in the state. Assuming that the HETL database for nitrate-N represents Maine ground water quality, data from January 2006 to May 2007 indicate approximately 98% of wells sampled have concentrations below 5 mg/L, well below the 10 mg/L drinking water standard for nitrate-N (Table 6-9). This percentage has remained steady for the past few reporting cycles.

Table 6-6 Nitrate-N Frequency Distributions

Nitrate-N (mg/L)	HETL Database ¹ (percent)	HETL Database ² (percent)	HETL Database ³ (percent)
0.00 to 2.50	91.9	92	93.7
2.51 to 5.00	5.6	6.0	4.5
5.01 to 7.50	2.0	2.0	1.1
7.51 to 10.00	0.5	0.4	0.5
Greater than 10.0	0.0	0.6	0.2
Number of Analyses	2,197	3,638	7,100

¹HETL database for private well analyses between 1/1/04 and 5/31/05.

²HETL database for private well analyses between 1/1/02 and 12/31/03.

³HETL database for private well analyses between 1/1/06 and 5/31/07.

BACTERIA

Private well testing for bacteria identifies a greater contamination potential from bacteria than from nitrate. In public and private drinking water supplies, coliform bacteria are used as the indicator of microbial contamination. The Primary Drinking Water Standard for total coliform bacteria is 0 colonies per 100 ml.

Table 6-7 shows that larger percentages of dug wells test positive for bacteria than drilled wells. This lends support to the belief that dug wells are more susceptible to bacterial contamination than drilled wells.

Table 6-7 Wells testing positive for E. coli or total coliform

Well Type	HETL Database 1960-1990 % wells positive for total Coliform or E. Coli	HETL Database 1/04-5/05 % wells positive for total Coliform or E. Coli	HETL Database 6/06-8/06 ¹ % wells positive for total Coliform or E. Coli
Dug	52%	32%	35%
Drilled	24%	14%	16%

¹Only Data available from HETL which distinguishes the well type was from this time period in 2006. HETL stopped collecting well type data after 2006.

Please refer to pages 138-140 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on nitrates, bacteria, and septic systems in Maine. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

Shallow Well Injection and the Underground Injection Control (UIC) Program

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Related Website: www.maine.gov/dep/blwq/docstand/uic/index.htm

The underground discharge of pollutants by shallow well injection has been illegal in Maine since 1983 when the State adopted the Federal Underground Injection Control (UIC) regulations. The revised rule for UIC was adopted by the BEP in September 2006 and the Primacy package was sent to the U.S. EPA in October of 2006. Table 6-8 lists information on numbers of inspections and registrations for the Federal Fiscal Year 2007 (October 06- September 07).

Table 6-8 Underground Injection Control Program Information

Federal Fiscal Year 2007	New Registrations	Inspections	Variances	Notices of Violation	Enforcement Referrals
FFY2007	10	26	9	12	0

Other Programs

Please refer to pages 142-144 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on programs which may monitor for affects to groundwater from the following activities. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

STORMWATER INFILTRATION

Contact: John Hopeck, DEP BLWQ, Division of Environmental Assessment (DEA)

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SALT-WATER INTRUSION

Contact: Marc Loiselle, DOC BGNA, Maine Geological Survey, Applied Geology Division, Hydrogeology Section

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In coastal areas, excessive ground water withdrawals and/or well placements that are too close to the shoreline may lead to saltwater intrusion.

METALLIC MINING

Contact: Mark Stebbins, DEP BLWQ, Division of Land Resource Regulation (DLRR)

Tel: (207) 822-6367 email: Mark.N.Stebbins@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docstand/miningpage.htm

GRAVEL PITS

Contact: Mark Stebbins, DEP BLWQ, Division of Land Resource Regulation (DLRR)

Tel: (207) 822-6367 email: Mark.N.Stebbins@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/blwq/docstand/miningpage.htm

RADIOACTIVE WASTE STORAGE AND DISPOSAL SITES

Contact: Tom Hillman, DHHS Maine CDC, Division of Environmental Health, Radiation Control Program

Tel: (207) 287-8401 email: Tom.Hillman@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dhhs/eng/rad/hp_waste.htm

Summary of Ground Water Quality

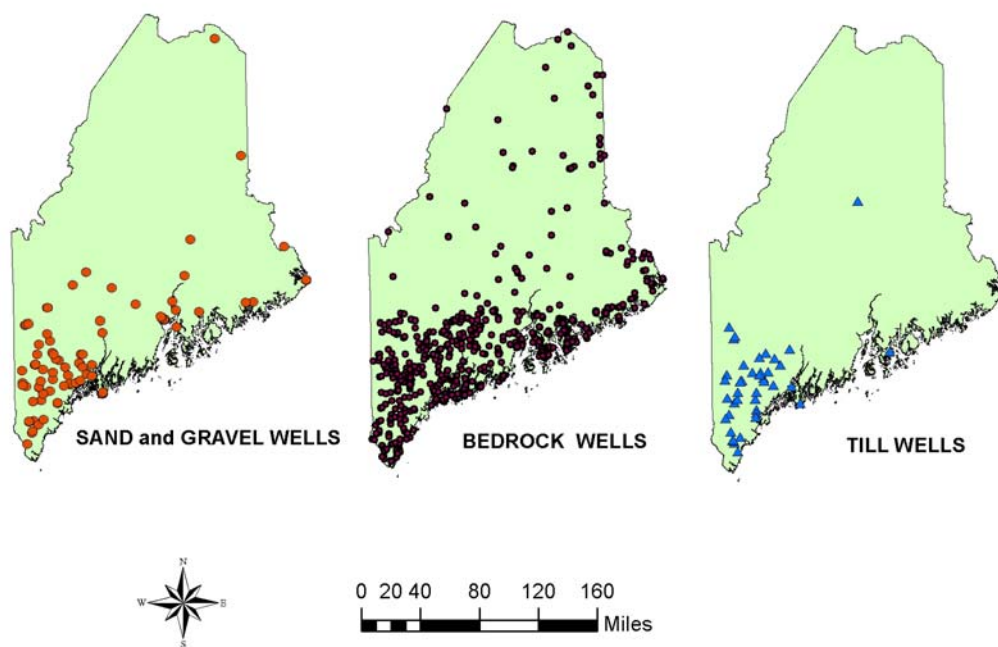


Figure 6-2 Distribution of Sole Source Public Water Supply Wells for the Ambient Water Quality Monitoring Network by Aquifer Type. Wells shown are those which were sampled.

For 2008 the ambient ground water quality monitoring network consists of 2,665 public water supplies. Each of the selected public water supplies is provided by only one source of water: either a drilled well in bedrock; a dug well in glacial till; a drilled well, well point, or dug well in glacial outwash sand and gravel or recent sandy alluvium (Figure 6-2). Some of the wells are large community water supplies; some are non-transient, non-community water supplies. Analytical results for periodic, routine sampling of raw water were provided by the DWP. Not all the well samples were analyzed for the all the same chemical constituents every time they were obtained: frequency depends on the type of water supply and the population served. Nevertheless, the DEP believes that the selection represents ambient ground water quality in the three major geologic settings that provide ground water in Maine. Sand and gravel aquifers are often high yield water sources and are often found in developed areas, and are therefore vulnerable to contamination. Bedrock aquifers, though not usually hydrologically connected, underlie the whole state and are mostly used as private water supplies, as are glacial till aquifers. The locations of the wells used to indicate ambient water quality are shown in Figure 6-3 and a summary of the ambient water quality data is in Table 6-9. Figure 6-2 shows the distribution of these wells by aquifer type.

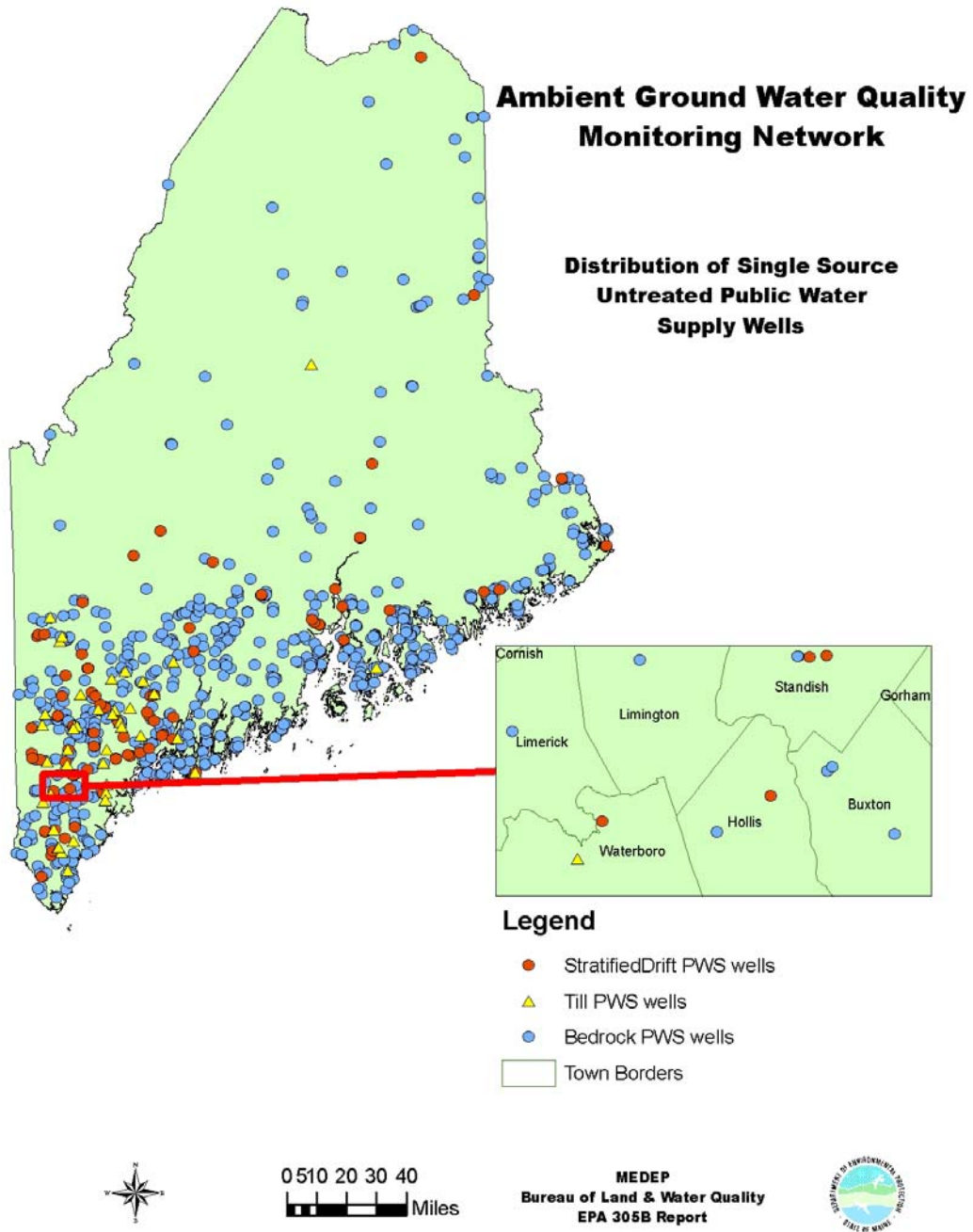


Figure 6-3 Ambient Water Quality Monitoring Network Well Location Map

Table 6-9 Ambient Aquifer Monitoring Data*

Ambient Ground Water Quality Monitoring Well Data							
Aquifer Description: Till		Data Reporting Period: Jan. 2006-May. 2007					
Statewide							
Monitoring data type ¹	Total number of wells used in assessment	Parameter groups	No detections of parameters above MDLs or background levels	No detections of parameters above MDLs or background levels and nitrate concentrations range from background levels to ≤5 mg/l	Parameters are detected at concentrations exceeding the MDL, but are less than or equal to MCLs and/or nitrate ranges from >5 to ≤10 mg/l	>10m/l	Parameters are detected at concentrations exceeding MCL's
Ambient (raw) water quality	73	VOC	99	0	1	0	0
data from public	# of Tests:	SOC	no tests	no tests	no tests	na	na
water supply wells	1274	NO3	35	25	0	0	0
		Other	1039	0	16	0	25 ²
Ambient Ground Water Quality Monitoring Well Data							
Aquifer Description: Bedrock		Data Reporting Period: Jan. 2006-May. 2007					
Statewide							
Monitoring data type ¹	Total number of wells used in assessment	Parameter groups	No detections of parameters above MDLs or background levels	No detections of parameters above MDLs or background levels and nitrate concentrations range from background levels to ≤5 mg/l	Parameters are detected at concentrations exceeding the MDL, but are less than or equal to MCLs and/or nitrate ranges from >5 to ≤10 mg/l	.10m/l	Parameters are detected at concentrations exceeding MCL's
Ambient (raw) water quality	2306	VOC	20057	0	67	0	2
data from public	# of Tests:	SOC	1199	0	29	0	0
water supply wells	69121	NO3	3731	1140	37	0	3
		Other	36812	0	3351	0	475 ³
Major uses of aquifers or hydrologic units: <input checked="" type="checkbox"/> Public water supply <input type="checkbox"/> Irrigation <input type="checkbox"/> Commercial <input type="checkbox"/> Mining <input type="checkbox"/> Baseflow							
<input checked="" type="checkbox"/> Private water supply <input type="checkbox"/> Thermoelectric <input type="checkbox"/> Livestock <input type="checkbox"/> Industrial <input type="checkbox"/> Maintenance							
Uses affected by water quality problems units: <input checked="" type="checkbox"/> Public water supply <input type="checkbox"/> Irrigation <input type="checkbox"/> Commercial <input type="checkbox"/> Mining <input type="checkbox"/> Baseflow							
<input checked="" type="checkbox"/> Private water supply <input type="checkbox"/> Thermoelectric <input type="checkbox"/> Livestock <input type="checkbox"/> Industrial <input type="checkbox"/> Maintenance							

² All these exceedances in this parameter group (Other) are due to the present of E Coli and Total Coliform

³ All these exceedances in this parameter group (Other) are due to the present of E Coli and Total Coliform

* data supplied by DHS/BH/DHE/Drinking Water Program, analysis by DEP/BLWQ/DEA/Environmental Geology Unit

Table 6-9 Aquifer Monitoring Data (Continued)

Ambient Ground Water Quality Monitoring Well Data

Aquifer Description: Stratified Drift
Statewide

Data Reporting Period: Jan. 2006-May. 2007

Monitoring data type ¹	Total number of wells used in assessment	Parameter groups	No detections of parameters above MDLs or background levels	No detections of parameters above MDLs or background levels and nitrate concentrations range from background levels to ≤ 5 mg/l	Parameters are detected at concentrations exceeding the MDL, but are less than or equal to MCLs and/or nitrate ranges from >5 to ≤ 10 mg/l	.10m/l	Parameters are detected at concentrations exceeding MCL's
Ambient (raw) water quality	286	VOC	1757	0	4	0	0
data from public water supply wells	# of Tests: 10759	SOC	458	0	4	0	0
		NO3	3	88	5	0	2
		Other	8106	0	282	0	50 ⁴

Major uses of aquifer or hydrologic unit: Public water supply ___ Irrigation ___ Commercial ___ Mining ___ Baseflow Private water supply ___ Thermoelectric
 Livestock ___ Industrial ___ Maintenance

Uses affected by water quality problems: Public water supply ___ Irrigation ___ Commercial ___ Mining ___ Baseflow Private water supply ___ Thermoelectric
 Livestock ___ Industrial ___ Maintenance

⁴ All exceedances in this parameter group (Other)and column are due to the present of E Coli and Total Coliform

GROUNDWATER TRENDS

New occurrences of ground water contamination are documented in Maine each year. Although discovery of existing contamination is expected to continue, future reports of contamination are expected to decline substantially as the State's ground water protection initiatives continue to be implemented. These programs stress contamination prevention rather than remediation.

Please refer to pages 149-153 of the 2006 Integrated Water Quality Monitoring and Assessment Report for further information on programs which may indicate ground water quality trends. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

CHAPTER 7 PUBLIC HEALTH – RELATED ASSESSMENTS

Beach Program Monitoring & Assesments

Contact: David Courtemanch, Division of Environmental Assessment (DEA)
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MAINE HEALTHY BEACHES PROGRAM

Contacts: Paula Thomson, State Planning Office, Coastal Program (Lead Agency)
Tel: (207) 287-3261 email: Paula.Thomson@SPAM-ZAPmaine.gov
Esperanza Stancioff, University of Maine Cooperative Extension and Sea Grant
(Program Coordinator)
Tel: (207) 832-0343 email: esp@SPAM-ZAPumext.maine.edu

Matt Liebman, EPA Region 1, BEACH Program Coordinator
Tel: (617) 918-1626 email: liebman.matt@SPAM-ZAPepa.gov

Related Websites: (Maine Specific) www.mainehealthybeaches.org/
(Federal) www.epa.gov/ost/beaches

There is growing public interest in monitoring ocean beaches in order to provide protection of swimmer health. The Maine Department of Environmental Protection (DEP) has focused on ensuring that areas influenced by licensed discharges are not a threat to swimmer health. All participants in the Maine Healthy Beaches Program (MHB), including State Parks, conduct routine monitoring of beach water quality on a weekly basis from Memorial Day through Labor Day. When exceedances occur, resampling is conducted for those sites. Private beach owners are responsible for their own monitoring programs unless they are working with the municipality and Maine Healthy Beaches, but often private beaches do not conduct any monitoring at all. In Maine, the monitoring of town owned beaches and providing public notification is the jurisdiction of the municipality.

The U.S. Environmental Protection Agency (EPA) initiated the Beaches Environmental Assessment, Closure and Health (BEACH) Act of 2000 in response to the growing concern about public health risks posed by polluted coastal swimming beaches. The

Maine Healthy Beaches Program (MHB) is a voluntary program and includes these components: water quality assessment and public notification of beach status, education and outreach, and working with communities and program partners to identify and remediate pollution sources through applied research and special studies.

The assessment program includes measurement of critical factors that affect the health of the beach environment as well as the health of people who visit them (for participating beaches only). Table 7-1 shows participating Maine beaches as of 2007.

Table 7-1 Beaches Participating in the MHBP

Beach Name	Managing Organization
<u>Sand Beach</u>	Acadia National Park
<u>Hadley Point</u>	Bar Harbor
<u>Hulls Cove</u>	Bar Harbor
<u>Town Beach</u>	Bar Harbor
<u>Fortunes Rocks Beach</u>	Biddeford
<u>Middle Beach</u>	Biddeford
<u>Pemaquid Beach</u>	Bristol
<u>Camden Yacht Club</u>	Camden
<u>Laité Beach</u>	Camden
<u>Crescent Beach</u>	Crescent Beach State Park
<u>Kettle Cove Beach</u>	Crescent Beach State Park
<u>Ferry Beach (Saco)</u>	Ferry Beach State Park
<u>Hills Beach</u>	Hills Beach Association
<u>Gooches Beach</u>	Kennebunk
<u>Kennebunk (Mother's) Beach</u>	Kennebunk
<u>Libby Cove Beach</u>	Kennebunk
<u>Middle Beach</u>	Kennebunk
<u>Colony Beach</u>	Kennebunkport
<u>Goose Rocks</u>	Kennebunkport
<u>Crescent Beach (Kittery)</u>	Kittery
<u>Fort Foster</u>	Kittery
<u>Sea Point Beach</u>	Kittery
<u>Lincolnton Beach Area</u>	Lincolnton
<u>Emery Cove Beach</u>	Mt. Desert Island Water Quality Coalition
<u>Footbridge (Ogunquit)</u>	Ogunquit
<u>Little Beach</u>	Ogunquit
<u>Main (Ogunquit)</u>	Ogunquit
<u>Moody (Ogunquit)</u>	Ogunquit
<u>Riverside (Ogunquit)</u>	Ogunquit
<u>OOB - Central</u>	Old Orchard Beach
<u>OOB - North End</u>	Old Orchard Beach
<u>OOB - Ocean Park</u>	Old Orchard Beach
<u>Popham - Center Beach</u>	Popham Beach State Park
<u>Popham - East Beach</u>	Popham Beach State Park
<u>Popham - West Beach/Morse River</u>	Popham Beach State Park
<u>East End Beach</u>	Portland

<u>East Beach</u>	Reid State Park
<u>Half mile Beach</u>	Reid State Park
<u>Lagoon Beach</u>	Reid State Park
<u>Mile Beach</u>	Reid State Park
<u>Sandy Beach</u>	Rockland
<u>Bay View</u>	Saco
<u>Kinney Shores</u>	Saco
<u>Ferry Beach (Scarborough)</u>	Scarborough
<u>Higgins Beach</u>	Scarborough
<u>Pine Point</u>	Scarborough
<u>Scarborough Beach</u>	Scarborough Beach State Park
<u>Willard Beach</u>	South Portland
<u>Casino Square</u>	Wells
<u>Crescent Beach (Wells)</u>	Wells
<u>Drakes Isl. Beach</u>	Wells
<u>Wells Beach</u>	Wells
<u>Wells Harbor</u>	Wells
<u>Laudholm Beach</u>	Wells National Estuarine Research Reserve
<u>Cape Neddick Beach</u>	York
<u>Long Sands Beach</u>	York
<u>Short Sands Beach</u>	York
<u>York Harbor Beach</u>	York

SWIMMING BEACH CLOSURES

Contact: Esperanza Stancioff, University of Maine Cooperative Extension and Sea Grant (Program Coordinator)

Tel: (207) 832-0343 email: esp@SPAM-ZAPumext.maine.edu

Related Website: www.mainehealthybeaches.org/

Under Clean Water Act (CWA) guidelines, the designated use of swimming beaches is for "Recreation in and on the Water." The beaches listed in Table 7-2 had advisories or closures for the number of days noted. Beaches can be closed or posted to warn of health risks; both methods use some form of risk analysis.

Beach advisories are posted according to:

- Results obtained from bacteria water quality samples exceeding State and Federal standards.
 - Conditions at sample site indicating the possible presence of disease-causing organisms.
- These advisories are recommendations to the public to avoid water contact activities at the beach until further analyses reveal safe conditions.

A beach closure closes the beach to water contact. Closures are based on a number of factors (Risk-Based Assessment Matrix): bacterial count, bather numbers, time of last rainfall, and history of known problems. This is a coordinated decision between the Beach Manager, Town official/State Park Director, and Program Coordinator. A copy of the Risk Assessment Matrix may be viewed and downloaded by visiting this URL: www.mainehealthybeaches.org/assets/pdfs/matrix.pdf

2008 Maine Integrated Water Quality Report

For this 2008 Integrated Report, 2006 data show there were 147 advisory and closure days at 19 beaches.

Table 7-2 2006 Beach Closure or Advisory Information

Beach Name and Event	Total Days in 2006
Bay View (Saco)	2
Camden Yacht Club - Advisory	23
Colony Beach (Kennebunkport) - Advisory	8
Crescent Beach (Cape Elizabeth) - Advisory	2
Ferry Beach (Saco) - Advisory	4
Ferry Beach (Scarborough) Advisory	2
Fortunes Roch Beach - Advisory	1
Gooches Beach (Kennebunk) – Advisory and Closure (3)	13
Goose Rock (Kennebunkport) - Advisory	38
Hill Beach (Biddeford) - Advisory	5
Lagoon Beach - Advisory	3
Laité Beach - Advisory	8
Laudholm Beach (WNERR) - Advisory	17
Lincolville Beach Area - Advisory	1
Middle Beach (Kennebunk) - Advisory	1
Old Orchard Beach - Advisory	2
Pine Point - Advisory	5
Sea Point Beach - Advisory	2
Willard Beach (South Portland) – Advisory and Closure (4)	10

Data from 2007 show that there were 171 advisory days and 2 closure days at 29 beaches.

Table 7-3 2007 Beach Closure or Advisory Information

Town Name	Beach Name	Advisory Days	Closure Days	Total Days in 2007
Cape Elizabeth	Crescent Beach (Crescent Beach St. Park)	4		4
Cape Elizabeth	Kettle Cove (Crescent Beach St. Park)	4		4
Portland	East End		2	2
Scarborough	Higgins	2		2
Scarborough	Ferry Beach	1		1
Scarborough	Scarborough (Scarborough Beach St. Park)	1		1
South Portland	Willard Beach	2		2
Lincolville	Lincolville Beach	2		2
Camden	Laité Beach	4		41
Camden	Yacht Club	11		11
Rockland	Sandy Beach	14		14
Phippsburg	East (Popham Beach St. Park)	4		4
Phippsburg	Center (Popham Beach St. Park)	5		5
Georgetown	East (Reid St. Park)	3		3
Georgetown	Lagoon (Reid St. Park)	2		2
Georgetown	Mile (Reid St. Park)	2		2
Wells	Drakes Island	6		6
Wells	Wells Harbor	11		11
Wells	Laudholm (WNERR)	3		3
Saco	Kinney Shores	5		5
Saco	Ferry (Ferry Beach St. Park)	1		1
Biddeford	Middle	5		5

Kennebunk	Gooches Beach	18		18
Kennebunkport	Goose Rocks	39		39
Kennebunkport	Colony Beach	9		9
Ogunquit	Main	2		2
Ogunquit	Footbridge	2		2
Ogunquit	Riverside	2		2
Ogunquit	Little	1		1
York	Cape Neddick	6		6
TOTALS		171	2	173

Shellfish Program Monitoring & Assessments

SHELLFISH HARVEST AREA CLOSURES

Contact: Amy Fitzpatrick, Director, DMR BRM, Public Health Division, Shellfish Sanitation Program

Tel: (207) 633-9554 email: Amy.Fitzpatrick@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dmr/rm/public_health/publichealth.html

The Department of Marine Resources (DMR) assesses information on shellfish growing areas to ensure that shellfish harvested are safe for consumption. A goal of the Clean Water Act (CWA) is to have these areas meet their designated use of "Propagation and Harvest of Shellfish." Shellfish areas are closed by DMR if the area is found to have elevated levels of bacteria or if the area is determined as threatened by potential sewage pollution problems (proximity of wastewater outfalls or intense storm runoff events). Water samples are collected and tested for fecal coliform bacteria at least six (6) times annually from each of the more than 2,000 established sampling sites that are located along the entire Maine coast. The shoreline survey includes a visual inspection of the shoreline to determine the location and magnitude of potential sewage pollution and toxic contamination problems.

Table 7-4 presents both the percentage and the total area in acres under each classification. Current calculations estimate that Maine has a total of 1,821,434 acres of tidal flats and coastal waters in this classification system. This number has varied some over the past few 305b reporting cycles because of changes in the underlying data sets that Geographic Information Systems (GIS) use to calculate areas and because of the way DMR designates its shellfish harvesting areas. These changes have made it difficult to accurately determine how much progress has been made in the opening up of additional shellfish harvesting areas.

Table 7-4 Classification of Shellfish Harvesting Areas

Classification	Percentage	Acres	Square Miles
Supporting (approved)	90.8 %	1,654,408	2,585
Partially Supporting (conditional or restricted)	1.4 %	24,648	38.5
Not supporting (prohibited)	7.8 %	142,378	222.5
Total	100.00 %	1,821,434	2,846

TOXIC ALGAE (RED TIDE)

Contact: Darcie Couture, Toxin Monitoring Director, DMR BRM, Public Health Division, Marine Biotoxin Monitoring Program

Tel: (207) 633-9570 email: Darcie.Couture@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dmr/rm/public_health/redtide.htm

"Red Tide" is used to refer to rapid increases in numbers of microscopic marine algae that contain potentially lethal toxins. The toxin is transferred to humans by the ingestion of shellfish that have filtered the organisms into their systems. The toxin affects humans by paralyzing the central nervous system and, in high doses, may cause death.

DMR's Biotoxin Monitoring Program monitors levels of PSP (Paralytic Shellfish Poisoning or "Red Tide") and other marine biotoxins in the shellfish and waters of Maine. Shellfish samples are collected statewide between April and October and evaluated at the Biotoxin laboratories in West Boothbay Harbor and Lamoine. When toxin is found approaching quarantine levels, closures of shellfish harvest areas are implemented. Maine has historically had high levels of PSP during the warmer periods of the year. While red tide is a water quality issue, it is not a direct cause and effect relationship with human-caused pollutants. Closures, therefore, are not reported as violations of water quality standards.

For information on closures, call DMR's hot line 1-800-232-4733 or 207-633-9571 or visit the web at

www.maine.gov/dmr/rm/public_health/closures/shellfishhotline.htm

The DMR also has an Internet Mapping Site that contains information on Red Tide - the link to that site is here: http://megisims.state.me.us/dmr_redtide/

Ocean Fish and Shellfish Consumption Advisories

Contact Andrew Smith, DHHS Maine CDC, Environmental and Occupational Health Program

Tel: (207) 287-5189 email: Andy.E.Smith@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dhhs/eohp/fish/

Waters do not attain their "Clean Water Act-designated use for Fishing," whenever government agencies issue fish and/or shellfish consumption advisories. These advisories are designed to let citizens know that there may be an increased risk to their health if they choose to consume certain species of fish or shellfish. Since 1992, human health consumption advisories have been in place to warn the public against the consumption of lobster tomalley due to high levels of toxic contaminants. However, no evidence of elevated levels of these contaminants was found in lobster meat. The advisory was expanded to include bluefish and striped bass in 1996, also due to detection of elevated levels of toxic contaminants in their flesh. The entire Maine coast is only in partial support of its designated use for fishing due to these consumption advisories. Toxic contamination found in lobster tomalley is presumed to originate in Maine waters, which leads to their listing in Category 5-D for non-attainment due to legacy pollutants. Toxic contaminants found in migratory or pelagic

finfish are presumed to have been acquired largely outside of Maine waters where the fish spend most of their lives. Thus advisories for marine finfish are not listed as causes of non-attainment.

ADVISORY OVERVIEW

Current information, with a last revision date of February 20, 2001, on ocean fish and shellfish advisories as adapted from the Maine CDC is as follows:

WARNING About Eating Saltwater Fish and Lobster Tomalley

Warning: Chemicals in some Maine saltwater fish and lobster tomalley may harm people who eat them. Women who are or may become pregnant and children should carefully follow the Safe Eating Guidelines.

It's hard to believe fish that looks, smells, and tastes fine may not be safe to eat. But the truth is that some saltwater fish have mercury, PCBs and Dioxins in them.

All these chemicals settle into the ocean from the air. PCBs and Dioxins also flow into the ocean through our rivers. These chemicals then build up in fish.

Small amounts of mercury can damage a brain starting to form or grow. That's why babies in the womb, nursing babies, and young children are at most risk. Mercury can also harm older children and adults, but it takes larger amounts.

PCBs and Dioxins can cause cancer and other health problems if too much builds up in your body. Since some saltwater fish contain several chemicals, we ask that all consumers of the following saltwater species follow the safe eating guidelines.

SPECIFIC OCEAN FISH CONSUMPTION ADVISORIES

SAFE EATING GUIDELINES

Striped Bass and Bluefish: Recommended to eat no more than 2 meals per month.

Shark, Swordfish, King Mackerel, and Tilefish: Pregnant and nursing women, women who may get pregnant and children under 8 years of age are advised to not eat any swordfish or shark. All other individuals should eat no more than 2 meals per month.

Canned Tuna: Pregnant and nursing women, women who may get pregnant and children under 8 years of age should eat no more than 1 can of "white" tuna or 2 cans of "light" tuna per week.

All other ocean fish and shellfish, including canned fish and shellfish: Pregnant and nursing women, women who may get pregnant and children under 8 years of age should eat no more than 2 meals per week.

LOBSTER MEAT AND TOMALLEY CONSUMPTION ADVISORIES

Lobster Meat: Consumption advisories do not exist for lobster meat.

Lobster Tomalley: Recommended to completely avoid consumption of lobster tomalley. While there is no known safety considerations when it comes to eating

lobster meat, consumers are advised to refrain from eating the tomalley. The tomalley is the soft, green substance found in the body cavity of the lobster that functions as the liver and pancreas. Test results have shown that the tomalley can accumulate contaminants found in the environment.

For more information, including warnings on freshwater fish call (866) 292-3474 or visit the related web site at: www.maine.gov/dhhs/eohp

Freshwater Fish Consumption Monitoring, Assessments and Advisories

Contact: Barry Mower, DEP BLWQ, Division of Environmental Assessment (DEA)

Tel: (207) 287-3901 email: Barry.F.Mower@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/dioxin/

In addition to marine fish and shellfish, DEP monitors freshwater fish in its Dioxin Monitoring Program and Surface Waters Ambient Toxics (SWAT) monitoring program for contaminants that may present a risk for human consumption. The results are forwarded to the MCDC who is responsible for recommending the warnings on eating fish based on the presence of chemicals (MSRA 22 § 1696 I). MCDC does so in the form of Fish Consumption Advisories, which can be seen with additional information at <http://www.maine.gov/dhhs/eohp/fish/>. There is a statewide Fish Consumption Advisory for all freshwaters because of mercury and additional advisories for specific waters because of other contaminants.

MERCURY STATEWIDE FISH CONSUMPTION ADVISORY

Based on monitoring of mercury concentrations in freshwater fish from all over Maine, the Maine Bureau of Health (now MCDC) issued a statewide advisory for all Maine lakes and ponds in 1994 and expanded it to include all freshwaters in 1997 as follows:

Pregnant and nursing women, women who may get pregnant, and children under age 8 SHOULD NOT EAT any freshwater fish from Maine's inland waters. Except, for brook trout and landlocked salmon, 1 meal per month is safe.

All other adults and children older than 8 CAN EAT 2 freshwater fish meals per month. For brook trout and landlocked salmon, the limit is 1 meal per week.

DIOXIN

Dioxin levels in fish from Maine rivers continue to decline, approaching background at some locations but still exceeding background at others.

An evaluation of the need for fish consumption advisories due to the presence of dioxin-like compounds in fish requires a comparison to a health benchmark. The ME-CDC uses a health benchmark that is expressed as a toxicity-weighted concentration of dioxin-like compounds in fish tissue, referred to as a "Fish Tissue Action Level" or FTAL. For the present report, the ME-CDC compares the most recent data on contaminant levels to its current FTALs for dioxin-like compounds of 1.5 parts

per trillion (ppt) for protection of cancer-related effects and a 0.4 parts per trillion FTAL for protection of noncancer related effects. The FTAL of 1.5 ppt for cancer related effects has been used by ME-CDC since 1990. The FTAL of 0.4 ppt for noncancer effects is based on the same toxicity data relied upon since 1990, but has been adjusted downward to account for the substantial background exposure we all get from the presence of these chemicals in most dietary foods.

The ME-CDC has evaluated recent data that can be seen at

http://mainegov-images.informe.org/dep/blwq/docmonitoring/dioxin/report_2007.pdf

RIVER AND STREAM SPECIFIC FISH CONSUMPTION ADVISORIES

The dominant causes for the following fish consumption advisories are identified as dioxin/furans/coplanar PCBs, total PCBs, and total DDTs (DDD + DDE + DDT). ME-CDC is currently reviewing all the fish contaminant data since 2003 and expects any revisions to the fish consumption advisories to be issued in spring 2008.

Current advisories are listed on next page.

Department of Health and Human Services Guidelines about Eating Freshwater Fish

Warning: Mercury in Maine freshwater fish may harm the babies of pregnant and nursing mothers, and young children.

SAFE EATING GUIDELINES

Pregnant and nursing women, women who may get pregnant, and children under age 8 SHOULD NOT EAT any freshwater fish from Maine's inland waters. Except, for brook trout and landlocked salmon, 1 meal per month is safe.

All other adults and children older than 8 CAN EAT 2 freshwater fish meals per month. For brook trout and landlocked salmon, the limit is 1 meal per week.

It's hard to believe that fish that looks, smells, and tastes fine may not be safe to eat. But the truth is that fish in Maine lakes, ponds, and rivers have mercury in them. Other states have this problem too. Mercury in the air settles into the waters. It then builds up in fish. For this reason, older fish have higher levels of mercury than younger fish. Fish (like pickerel and bass) that eat other fish have the highest mercury levels.

Small amounts of mercury can harm a brain starting to form or grow. That is why unborn and nursing babies and young children are most at risk. Too much mercury can affect behavior and learning. Mercury can harm older children and adults, but it takes larger amounts. It may cause numbness in hands and feet or changes in vision. The Safe Eating Guidelines identify limits to protect everyone.

Warning: Some Maine waters are polluted, requiring additional limits to eating fish.

Fish caught in some Maine waters have high levels of PCBs, Dioxins or DDT in them. These chemicals can cause cancer and other health effects. The Bureau of Health recommends additional fish consumption limits on the waters listed below. Remember to check the mercury guidelines. If the water you are fishing is listed below, check the mercury guideline above and follow the most limiting guidelines.

- Androscoggin River Gilead to Merrymeeting Bay:----- 6-12 fish meals a year.
- Dennys River Meddybemps Lake to Dead Stream:----- 1-2 fish meals a month.
- Green Pond, Chapman Pit, & Greenlaw Brook
(Limestone):-----**Do not eat any fish from these waters.**
- Little Madawaska River & tributaries
(Madawaska Dam to Grimes Mill Road):-----**Do not eat any fish from these waters.**
- Kennebec River Augusta to the Chops:-----**Do not eat any fish from these waters.**
- Shawmut Dam in Fairfield to Augusta:----- 5 trout meals a year, 1-2 bass meals a month.
- Madison to Fairfield: ----- 1-2 fish meals a month.
- Meduxnekeag River: ----- 2 fish meals a month.
- North Branch Presque Isle River----- 2 fish meals a month.
- Penobscot River below Lincoln:----- 1-2 fish meals a month
- Prestile Stream:----- 1 fish meal a month.
- Red Brook in Scarborough: ----- 6 fish meals a year.
- Salmon Falls River below Berwick: ----- 6-12 fish meals a year.
- Sebasticook River (East Branch, West Branch & Main Stem)
(Corinna/Hartland to Winslow):-----2 fish meals a month.

Ground Water and Public Health Concerns

PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS

Contaminants found in ground water have numerous adverse human health and environmental impacts. Public health concerns arise because some of the contaminants are individually linked to numerous toxic effects ranging from allergic reactions and respiratory impairment to liver and kidney damage, and damage to the central nervous system. Additional public health concerns also arise because information is not available about the health impacts of many contaminants found in ground water.

Due to uncertainties in the relationships between exposure to contaminants and impacts on human health, public health efforts are based on identifying the probabilities of impacts (i.e. risk assessment). Conducting a risk assessment for combinations of contaminants that are commonly found in ground water is difficult because there are no generally accepted protocols for testing the effects of contaminant interactions. The primary route of exposure to contaminants is through ingestion of drinking water, although exposure is also possible through contact with skin and inhalation of vapors from ground water sources (bathing, food preparation, industrial processes, etc.)

Because ground water generally provides base flow to streams and rivers, environmental impacts include toxic effects on benthic invertebrates, fish, wildlife and aquatic vegetation. This also presents a public health concern if the surface waterbody is a source of food and recreation. In some areas of the State there are probably links between low-level, long-term ground water quality degradation and the water quality of streams and brooks during low-flow conditions.

DRINKING WATER PROGRAMS AND GROUNDWATER CONTAMINANT ASSESSMENTS

WELLHEAD PROTECTION PROGRAM

Contact: David Braley, DHHS Maine CDC, Division of Environmental Health, Drinking Water Program

Tel: (207) 287-5338

email: David.Braley@SPAM-ZAPmaine.gov

Related Website:

www.maine.gov/dhhs/eng/water/Templates/Sections/Source%20Water%20Protection/sourcewaterprotection.htm or www.state.me.us/dhhs/eng/water/

The State of Maine Drinking Water Program (DWP), located in the Department of Health and Human Services, administers the Wellhead Protection Program (WHPP). The WHPP continues to be a voluntary program for Maine's public water suppliers, with all reduced or waived monitoring tied to approved protection programs. To be eligible for reduced or waived monitoring, a system must have an approved local Wellhead Protection Plan (WHPP) and have completed a waiver application.

SOURCE WATER ASSESSMENT PROGRAM

Contact: Andrews L. Tolman, DHHS Maine CDC, Division of Environmental Health, Drinking Water Program

Tel: (207) 287-2070 email: Andrews.L.Tolman@SPAM-ZAPmaine.gov

Related Websites:

www.maine.gov/dhhs/eng/water/Templates/Sections/Source%20Water%20Protection/sourcewaterprotection.htm or

www.maine.gov/dhhs/eng/water/forms/Sections/Resolve029finalrpt.htm

Water supply protection is the first line of defense in protecting public health. Protecting a water supply source has long been recognized as the cornerstone of providing safe drinking water. The most effective source protection method is to keep the area contributing water to the supply open and undeveloped. The Maine Drinking Water Program's (DWP) recently completed five year assessment of source protection for public water supplies identified rapid residential and commercial development in source protection areas as the most significant threat to water quality and quantity, and few water suppliers are prepared to deal with these risks.

Public Water Systems (PWS) have a very limited suite of tools for source protection: they can purchase land, inspect existing activities, and ask local government to enact (and enforce) protective ordinances. Only one in five of Maine's community water systems have effective source protection plans in place after more than fifteen years of encouragement and incentives.

FINISHED WATERS

Contact: Lindy Moceus, DHHS Maine CDC, Division of Environmental Health, Drinking Water Program

Tel: (207) 287-8402 email: Lindy.Moceus@SPAM-ZAPmaine.gov

Related Website:

www.maine.gov/dhhs/eng/water/Templates/Sections/Compliance/Compliance.htm

The Drinking Water Program (DWP) is the front line enforcement agent of the U.S. Environmental Protection Agency (EPA) for the rules and regulations set forth in the Safe Drinking Water Act (SDWA). The requirements of SDWA apply to the approximately 2,000 public drinking water systems in Maine. There are 80 water systems that use surface water as their primary source and these all have water treatment systems and watershed protection programs. Of the approximately 1,920 ground water systems, 661 have some form of treatment on-line while the remaining systems have no treatment and serve raw water. Water testing on finished water is the primary means for assessing public water system compliance while verifying the quality of water that is reaching consumers.

PRIVATE WELLS

Contact Andrew Smith, DHHS Maine CDC, Environmental and Occupational Health Program

Tel: (207) 287-5189 email: Andy.E.Smith@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dhhs/eohp/wells/

The State of Maine has one of the highest per capita uses of domestic household wells for drinking water in the U.S. Based on data from Maine's 2003 Behavioral Risk Factors Surveillance Survey (BRFSS), 52 percent of the state's population relies on private domestic wells for their drinking water. Despite the fact that the majority of Maine residents obtain their drinking water from private household wells, the State does not have an environmental health services program focused on meeting the needs of private well owners.

Please refer to pages 162-167 of the 2006 Integrated Water Quality Monitoring and Assessment Report for additional information on Maine's Wellhead Protection and Source Water Protection Programs, and Finished Water and Private Well information. <http://www.state.me.us/dep/blwq/docmonitoring/305b/index.htm>

MTBE

Contacts: DEP BRWM 207-287-2651; DHHS Maine CDC 207-287-3201; DOC Maine Geological Survey 207-287-2801; or the U.S. Geological Survey, 207-622-8201

Related Websites: (General Information) www.maine.gov/dep/mtbe.htm

(Questions and Answers) www.maine.gov/dep/rwm/publications/mtbeqa.htm

MTBE or methyl tert-butyl ether is an additive used in gasoline since the late 1970's to replace lead. It makes up about 3% of regular unleaded gasoline and 11% of reformulated gas (RFG). To meet federal clean air requirements, Maine began using RFG in November of 1994. There has been evidence of MTBE in ground water since before 1985. However, no widespread contamination was noted until 1998, when a series of gasoline contamination incidents and concurrent public concern caused the State of Maine to conduct a study of private and public water supply wells. Of the 951 private wells and 793 public water supply wells tested:

- 93% showed either no MTBE or trace levels (below 1ppb).
- 16% showed detectable levels of MTBE, while other gasoline constituents were rarely found.
- While no public water supplies in the study showed MTBE levels above the MCL; 1% of the private wells sampled did show levels above the MCL of 35 ppb.

The DEP's 1998 investigations of the wells with MTBE levels over the MCL indicated an association with relatively small gasoline spills that one might categorize as a "backyard" type of spill – e.g. small, accidental spills that occur while filling the gas tanks of an ATV, snowmobile, garden tractor, etc.

Legislation was approved on Apr. 14, 2004 to prohibit the sale of Gasoline containing MTBE. The prohibition reads "Beginning January 1, 2007 a person may not sell, offer for sale, distribute or blend in this State gasoline that contains more than 1/2 of 1% by volume MTBE that is intended for sale to ultimate consumers in this State." We are still cleaning up sites, but the amount of MTBE we are finding in groundwater is not as much as we had when using RFG.

RADON

Contact: Bob Stilwell, DHHS Maine CDC, Division of Environmental Health, Radiation Control Program

Tel: (207) 287-5676 (or 800-232-0842 in Maine)

email: Bob.Stilwell@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dhhs/eng/rad/hp_radon.htm

Not all public health concerns that involve ground water are caused by pollution released from human activities. The presence of naturally occurring radioactive radon gas in ground water drawn from granite bedrock aquifers and overlying soils has long been recognized as a problem in Maine. Based on studies of miners and more recently on people living in homes with high radon concentrations, medical researchers have shown that high radon levels in air are associated with increased incidence of lung cancer. Radon in water supplies is a concern because radon is readily released into the air from water. Therefore the health concerns stems more from inhalation of the radon rather than drinking the water. A large number of Maine wells have radon concentrations that through normal household water use, release concentrations of radon into the air that are as high or higher than the concentrations associated with an increased incidence of lung cancer.

Proposed federal standards for radon have raised concerns regarding ground water that had previously been regarded as acceptable. The average concentration of radon in public or private water supplies in Maine ranges from 5,000 to 10,000 picocuries/Liter (pci/L). Current Maine guidelines limit radon in water to 20,000 pci/L. The proposed federal standard would create a Maximum Contaminant Level (MCL) for radon in water of 300 pci/L with an Alternate MCL (AMCL) of 4,000 pci/L if a radon multimedia mitigation program is developed and instituted by the State or the community water suppliers. This multimedia mitigation plan would require reducing risks from radon in indoor air, which is estimated to cause 14,000 to 32,000 deaths annually in the U.S., compared to radon in drinking water which is estimated to cause 68 deaths annually. The AMCL of 4,000 pci/L was chosen because it is the amount of radon in drinking water that causes a risk equal to the risk from radon found in outdoor air. Statutory authority for the MCL, AMCL and multimedia mitigation plans were set in the Federal Safe Drinking Water Act Amendments of 1996.

ARSENIC

Contacts: Robert Marvinney, State Geologist, DOC BGNA, Maine Geological Survey, Administrative Division

Tel: (207) 287-2801 email: Robert.Marvinney@SPAM-ZAPmaine.gov

or David Braley, DHHS, Maine CDC, Division of Environmental Health, Drinking Water Program

Tel: (207) 287-5338 email: David.Braley@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dhhs/eohp/wells/asbrouchure.shtml

Several types of cancer including skin and bladder cancer, along with other health problems have been linked to the occurrence of arsenic in drinking water. The current Maximum Contaminant Level (MCL) for arsenic is 50 ppb (parts per billion); however the EPA has recently proposed lowering the MCL to 10 ppb in drinking water. The Maine Bureau of Health has set a maximum exposure guideline (MEG) for arsenic in domestic well water at 0.01 milligrams of arsenic per liter of water (which is equal to 10 ppb). This is also the same amount that the World Health Organization currently recommends. A 1994 – 1995 study of about 600 randomly selected wells indicates that, statewide, about 1 to 2 percent have arsenic levels greater than 50 ppb. However, about 10 percent have arsenic levels above the MEG of 10 ppb.

Currently a source or sources for all arsenic detected in well water has not been determined. However, preliminary work by the MGS, University of Maine Department of Geological Sciences, DEP, and DHHS indicate that the problem is of statewide significance and that the arsenic concentration in ground water is most likely the result of both natural processes and human activity.

CHAPTER 8 SUMMARY OF IMPAIRED WATERS

Table 8-1 presents specific *Causes* of impairment that have been removed from the 2002, 2004 and 2006 lists of Impaired Waters (the "303d List") for the specified river and stream segments. Refer to the "Delisting" section on page 53 for an explanation of the delisting process. It is important to note that segments may appear multiple times, if they have multiple causes that have been delisted. This list has been presented in this format in keeping with the manner in which the EPA Assessment Database (ADB) stores and reports this information.

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'02 '04	'06 '08				ME0101000303_124R01	Dickey Brook	Nutrient/Eutrophication Biological Indicators	TMDL approved by EPA Category 4A) 9/15/2006	Submitted with Daigle Pond/Cross Pond TMDL in September 2006. EPA approved TMDL 9/28/06
'02 '04	'06 '08				ME0101000303_124R01	Dickey Brook	Oxygen, Dissolved	TMDL approved by EPA Category 4A) 9/15/2006	Submitted with Daigle Pond/Cross Pond TMDL in September 2006. EPA approved TMDL 9/28/06
'02 '04	'06 '08				ME0101000303_124R02	Daigle Brook	Nutrient/Eutrophication Biological Indicators	TMDL approved by EPA Category 4A) 9/15/2006	Submitted with Daigle Pond/Cross Pond TMDL in September 2006. EPA approved TMDL 9/28/06
'02 '04	'06 '08				ME0101000303_124R02	Daigle Brook	Oxygen, Dissolved	TMDL approved by EPA Category 4A) 9/15/2006	Submitted with Daigle Pond/Cross Pond TMDL in September 2006. EPA approved TMDL 9/28/06
'02		'04		'06 '08	ME0101000412_140R01	No. Br. Presque Isle Stream between Mapleton and Presque Isle	Dissolved oxygen	State Determines water quality standard is being met (Category 2) 8/31/2006	Removal of Mapleton POTW complete. 2004 biomonitoring- showed attainment of Class A biocriteria and attains D.O. criteria at Station 11, 0.2 km downstream of Mapleton POTW
'02 '04			'06 '08		ME0101000413_142R01	Caribou Stream	Benthic-Macroinvertebrate Bioassessments (Streams)	Flaws in original listing (Category 3) 10/2006	Administrative error, conflicting data Biocriteria non-attainment is inconsistent; segment was 5A for nonattainment of biocriteria in 1994 only. Subsequent samples showed attainment; requires re-sampling
		'02 '04 '06 '08			ME0101000413_145R01	Little Madawaska River and tributaries	Benthic-Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	Haz waste remediation project is complete (Superfund)--expected to attain standards

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
		'02 '04 '06 '08			ME0101000413_145R 01	Little Madawaska River and tributaries	Polychlorinated biphenyls	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	Haz waste remediation project is complete (Superfund)--expected to attain standards by 2010
		'02 '04 '06 '08			ME0101000413_145R 02	Greenlaw Stream	Polychlorinated biphenyls	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 2002	Haz waste remediation project (Superfund)--expected to attain standards
			(4C) '02 '04	'06 '08	ME0102000103_201R 02	West Branch of Penobscot R below Seboomook Lake	Benthic-Macroinvertebrate Bioassessments (Streams)	State Determines water quality standard is being met (Category 2)	New water level agreement reached, water quality certification has been issued and UAA approved by EPA on April 5, 2005 (FERC# 2634, expiration date 11/31/2064). Meets applicable water quality standards.
'02 '04 '06				'08	ME0102000403_215R 01	Sebec River at Milo above confluence with Piscataquis R	Benthic-Macroinvertebrate Bioassessments (Streams)	Applicable WQS attained due to restoration activities	Previously listed in 5-A for biocriteria non-attainment based on 1985 data. This segment has been delisted: Resampling in 2006, at Biomonitoring Station 827, below the Milo Dam, shows attainment of Class A biocriteria.
'04				'02 '06 '08	ME0102000502_220R _01	Mattanawcook Stream (Lincoln)	E. coli	State Determines water quality standard is being met for this cause (Category 2)	CSO has been removed. Data from multiple sampling events collected by the Penobscot Indian Nation during summer 2004 for Mattanawcook Stream confirm attainment of numeric criteria for dissolved oxygen and bacteria. Segment is also Category 3 listed for sediment contamination; possible fish consumption impairment.

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'04				'02 '06 '08	ME0102000502_220R_01	Mattanawcook Stream (Lincoln)	Oxygen, dissolved	State Determines water quality standard is being met for this cause (Category 2)	CSO has been removed. Data from multiple sampling events collected by the Penobscot Indian Nation during summer 2004 for Mattanawcook Stream confirms attainment of numeric criteria for dissolved oxygen and bacteria. Segment is also Category 3 listed for sediment contamination; possible fish consumption impairment.
'02 '04				'06 '08	ME0102000502_231R	Penobscot R, main stem, from Cambolasse Str to Piscataquis R	Benthic-Macroinvertebrate Bioassessments (Streams)	Flaws in original listing of this cause (Category 2) 12/6/2006	Administrative error, no data to support impaired biocriteria assessment. Erroneously listed for benthic macroinvertebrates prior to 2002 cycle; has attained applicable biocriteria in 1992, 1993, 1994 and 1995.
'02 '04		'06 '08			ME0102000502_231R	Penobscot R, main stem, from Cambolasse Str to Piscataquis R	Dioxin (including 2,3,7,8-TCDD)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 8/1/2006	Dioxin controls in place and monitoring confirms improvement. Dioxin data from 2003 and 2005 showed no difference in fish above and below Lincoln.
'04		'06 '08		'02	ME0102000503_221R 01	Cold Stream (Enfield) downstream of hatchery	Benthic-Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 6/20/2006	Final hatchery permit issued 3/31/06 ; other pollution controls are in place, attainment expected by 2009;
'02 '04 '06	'08				ME0102000510_224R 04	Birch Stream (Bangor)	Benthic-Macroinvertebrate Bioassessments (Streams)	TMDL approved by EPA 9/12/07	EPA approved TMDL 9/12/07 Biomonitoring August 2005 and 2006 both still non-attainment
'02 '04		'06 '08			ME0103000304_313R 01	Mill Stream (Embden)	Benthic-Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 6/20/2006	Hatchery permit issued 1/30/2006; exp. Date 1/30/2011; other pollution controls are in place, attainment expected by 2009;

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'04		'06 '08		'02	ME0103000305_315R_02	Unnamed Stream trib to Sandy R (Avon-Dunham Hatchery)	Benthic-Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 6/20/2006	Hatchery permit issued 10/18/2005; expiration date 10/18/10; hatchery is now closed; other pollution controls are in place, attainment expected by 2008;
		'02 '04 '06 '08			ME0103000308_325R 01	East Branch Sebasticook River Corundel Pd to Sebasticook L (Corinna)	Benthic-Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	Haz waste remediation project (Superfund). CSO removal. New wastewater permit, removal to land treatment in 2004. Segment attains aquatic life criteria (2003 data). Expected to attain by 2008.
		'02 '04 '06 '08			ME0103000308_325R 01	East Branch Sebasticook River, Corundel Pd to Sebasticook L (Corinna)	Benzene	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	Haz waste remediation project (Superfund). CSO removal. New wastewater permit, removal to land treatment in 2004. Segment attains aquatic life criteria (2003 data). Expected to attain by 2008.
		'06 '08			ME0103000308_331R 01	Martin Stream (Dixmont)	Ammonia (Un-ionized)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 7/13/2006	CAFO permit issued 8/15/06; other pollution controls in place, expected to attain stds
		'06 '08			ME0103000308_331R 01	Martin Stream (Dixmont)	Benthic-Macroinvertebrate Bioassessments (Streams) 7/13/2006	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 7/13/2006	CAFO permit issued 8/15/06, other pollution controls in place, expected to attain stds
'02 '04	'06 '08				ME0103000310_322R 01	Fish Brook (Fairfield)	Benthic-Macroinvertebrate Bioassessments (Streams)	EPA approval of TMDL (Category 4A) 8/30/2005	EPA approved TMDL 8/30/2005
'02 '04	'06 '08				ME0103000310_322R 01	Fish Brook (Fairfield)	Oxygen, Dissolved	EPA approval of TMDL (Category 4A) 8/30/2005	EPA approved TMDL 8/30/2005

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'04	'06			'08	ME0104000206_423R01	Androscoggin R, main stem, Livermore impoundment	Benthic-Macroinvertebrate Bioassessments (Streams); Total Suspended Solids	Applicable WQS attained due to restoration activities	EPA approved TMDL 7/18/2005 (TMDL #11594) but there are ongoing licensing issues. Attained Class C biocriteria in 2003, and attained Class B biocriteria in 2004, 2005 and 2006. Benthic invertebrate and TSS causes delisted to 'WQS attainment'. Also 4b listed for dioxin 5d listed for legacy PCB contamination
		'02 '04 '06 '08			ME0104000206_423R01	Androscoggin R, main stem, Livermore impoundment	Dioxin (including 2,3,7,8-TCDD)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	4A listed for aquatic life and solids issues, TMDL is complete; EPA approved TMDL 7/18/2005 but there are ongoing licensing issues. Attained Class C biocriteria in 2003 and attained Class B biocriteria in 2004; Also 4B listed for dioxin; 5D listed for legacy PCB contamination.
		'02 '04 '06 '08			ME0104000207_412R02	House/Lively Brook	Nitrogen (Total)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	Waste (manure) removal (Agric NPS) by Consent Order and Site Permit-expected to attain standards; needs additional monitoring to confirm attainment.
'04			'06 '08	'02	ME0104000208_413R08	Bobbin Mill Brook (Lake Auburn Outlet, Auburn)	Benthic-Macroinvertebrate Bioassessments (Streams)	Flaws in original listing (Category 3) 3/9/05	Administrative error, conflicting data. Biocriteria non-attainment is inconsistent. Needs re-sampling to confirm non-attainment. 1998- non-attainment of biocriteria; biomonitoring in August 2003 showed attainment of biocriteria; Delist to Category 3--need to confirm that 1998 non-attainment was caused by natural conditions.
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	BOD, Biochemical oxygen demand	EPA approval of TMDL (Category 4A) 7/18/2005	4a EPA approved TMDL (TSS, DO, Nutrients/BOD; phosphorus) 7/18/05 but ongoing licensing issues; 4b dioxin

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
		'02 '04 '06 '08			ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	Dioxin (including 2,3,7,8-TCDD)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 3/15/2004	5d Fish tissue sampling shows legacy PCB 2/5/08 Non-attainment of Primary Contact Recreation use due to algae blooms Note: this segment was listed as 0104000208_424R_02 in the draft 2006 303d list; segment number has been changed in ADB to 424R_01 in ADB and in final 2006 report
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	Oxygen, Dissolved	EPA approval of TMDL (Category 4A) 7/18/2005	
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	Phosphorus	EPA approval of TMDL (Category 4A) 7/18/2005	
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	Total suspended solids	EPA approval of TMDL (Category 4A) 7/18/2005	
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam		EPA approval of TMDL (Category 4A) 7/18/2005	
'04	'06 '08				ME0104000208_424R_01	Androscoggin R, main stem, upstream of the Gulf Island Dam	Algae blooms	EPA approval of TMDL (Category 4A) 7/18/2005	4a EPA approved TMDL (TSS, DO, Nutrients/BOD; phosphorus) 7/18/05 but ongoing licensing issues; 4b dioxin 5d Fish tissue sampling shows legacy PCB 2/5/08 Non-attainment of Primary Contact Recreation use due to algae blooms Note: this segment was listed as 0104000208_424R_02 in the draft 2006 303d list; segment number has been changed in ADB to 424R_01 in ADB and in final 2006 report
		'02 '04 '06 '08			ME0105000201_507R_01	Dennys River	Polychlorinated biphenyls	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 9/5/2006	Haz waste remediation project (Superfund)-- expected to attain standards by 2010

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'02 '04	'06 '08				ME0105000217_520R 01	Carleton Stream (Blue Hill)	Benthic- Macroinvertebrate Bioassessments (Streams)	EPA approval of TMDL (Category 4A) 10/7/2004	EPA approved TMDL 10/7/2004
'02 '04	'06 '08				ME0105000217_520R 01	Carleton Stream (Blue Hill)	Iron	EPA approval of TMDL (Category 4A) 10/7/2004	EPA approved TMDL 10/7/2004
'02 '04		'06 '08			ME0105000305_528R 08_02	Sheepscot River below Sheepscot L	Oxygen, Dissolved	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 6/20/2006	Listed for dissolved oxygen; hatchery permit issued 2/20/06, expiration date 2/20/11; facility upgrade complete; Expected to attain standards by 2009.
'02 '04		'06 '08			ME0106000101_605R 01	Mile Brook (Casco)	Benthic- Macroinvertebrate Bioassessments (Streams)	Other point source or nonpoint source controls are expected to meet water quality standards (Category 4B) 6/20/2006	Hatchery permit issued 5/8/2006; exp. Date 5/8/2011; other pollution controls are in place, attainment expected by 2009;
'02 '04				'06 '08	ME0106000102_603R 05	Royal River, segment below Collyer Bk	Drinking water- trichloroethylene	State Determines water quality standard is being met (Category 2) 8/31/2006	Per RCRA hazardous waste site manager: June 2006 surface water monitoring determined that the trichloroethylene standards and all other water quality criteria are being met in the Royal River at sites down- gradient of the contaminated site.
	'02 '04			'06 '08	ME0106000103_609R _01	Presumpscot R, main stem, below Sacarappa Dam	BOD, Biochemical oxygen demand	State Determines water quality standard is being met (Category 2) 8/31/2006	Sources removed, pulping operation closed and Smelt Hill Dam has been breached. Bioassessment (2005) shows attainment of Class C dissolved oxygen and biocriteria (Class B biocriteria just above Smelt Hill dam site).
	'02 '04			'06 '08	ME0106000103_609R _01	Presumpscot R, main stem, below Sacarappa Dam	Total Suspended Solids (TSS)	State Determines water quality standard is being met (Category 2) 8/31/2006	Sources removed, pulping operation closed and Smelt Hill Dam has been breached. Bioassessment (2005) shows attainment of Class C dissolved oxygen and biocriteria (Class B biocriteria just above Smelt Hill dam site).

2008 Maine Integrated Water Quality Report

Table 8-1 Status of Category 5a / TMDL Rivers and Streams: 2002 through 2008. *Bold text indicates listing changes for the 2008 cycle.*

Category by Report Year					ADB Assessment Unit #	Water Name	Cause	Delisting Reason / Date	Comments
5	4A	4B	3	2					
'02 '04 '06	'08				ME0106000105_610R05	Trout Brook (So. Portland)	Benthic-Macroinvertebrate Bioassessments (Streams)	EPA approval of TMDL (Category 4A) 10/25/2007	EPA approved TMDL 10/25/2007 (under bundled urban stream project;)
'02 '04 '06	'08				ME0106000105_610R05	Trout Brook (So. Portland)	Habitat Assessment (Streams)	EPA approval of TMDL (Category 4A) 10/25/2007	EPA approved TMDL 10/25/2007 (under bundled urban stream project;)
'02 '04 '06	'08				ME0106000105_610R09	Barberry Cr	Benthic-Macroinvertebrate Bioassessments (Streams)	EPA approval of TMDL (Category 4A) 6/21/2007	EPA approved TMDL 6/21/2007 (under bundled urban stream project.)
'02 '04 '06	'08				ME0106000105_610R09	Barberry Cr	Habitat Assessment (Streams)	EPA approval of TMDL (Category 4A) 6/21/2007	EPA approved TMDL 6/21/2007 (under bundled urban stream project.)
'04			'06 '08	'02	ME0106000106_607R12	Norton Brook (Falmouth)	Benthic-Macroinvertebrate Bioassessments (Streams)	Flaws in original listing of this cause (Category 3) 10/2006	Administrative error, conflicting data. More data required to support impaired assessment. Non-attainment of biocriteria in 2002 may be due to natural habitat effects; needs resampling
'02	'04 '06 '08				ME0106000106_612R01_01	Goosefare Brook	Cd, Cr, Cu, Fe, Pd, Ni, Zn	EPA approval of TMDL (Category 4A) 9/29/2003	EPA approved TMDL 9/29/2003
	'02 '04 '06 '08				ME0106000305_630R01	Salmon Falls R, segment below Collyer Bk	Ammonia (Un-ionized)	EPA approval of TMDL (Category 4A) 11/1/1999	4-A EPA approved TMDL 11/22/99 for BOD, ammonia and phosphorus; 5B non-CSO, low priority bacteria listing; 5D fish tissue monitoring shows legacy PCBs and Dioxin
	'02 '04 '06 '08				ME0106000305_630R01	Salmon Falls R segment below Collyer Bk,	Nutrient/Eutrophication Biological Indicators	EPA approval of TMDL (Category 4A) 11/1/1999	4-A EPA approved TMDL 11/22/99 for BOD, ammonia and phosphorus; 5b non-CSO, low priority bacteria listing; 5D fish tissue monitoring shows legacy PCBs and Dioxin
	'02 '04 '06 '08				ME0106000305_630R01	Salmon Falls R, segment below Collyer Bk	Oxygen, Dissolved	EPA approval of TMDL (Category 4A) 11/1/1999	4-A EPA approved TMDL 11/22/99 for BOD, ammonia and phosphorus; 5b non-CSO, low priority bacteria listing; 5D fish tissue monitoring shows legacy PCBs and Dioxin

2008 Maine Integrated Water Quality Report

Table 8-2 Status of Category 5a / TMDL Lakes: 2000 through 2008 ¹

Lake	Town	MIDAS	Acres	HUC10	List Cat 00 ²	List Cat 02	List Cat 04	List Cat 06	List Cat 08	Comments
CHRISTINA RESERVOIR	FORT FAIRFIELD	9525	400	0101000501	(5a)	5a	5a	5a	5a	08: Stable, chronic blooming 'wetland'; TMDL in prep. 2009
LILLY P	ROCKPORT	83	29	0105000220	(5a)	5a	5a	4a	4a	08: Stable; TMDL app. Dec. 2005
NARROWS P (UPPER)	WINTHROP	98	279	0103000311	(3)	5a	5a	2 *	2 *	08: Originally listed in 1998 but low priority for TMDL (approved 2005). Data collected since listing and over long-term record indicate stable trend
ELL (L) P	WELLS	119	32	0106000304	(5a)	3	2	2 *	2 *	08: Delist no longer supporting repeated nuisance blooms
ARNOLD BROOK L	PRESQUE ISLE	409	395	0101000412	(5a)	5a	5a	5a	4a	08: Stable; TMDL Feb. 2007
DAIGLE P	NEW CANADA	1665	36	0101000303	(5a)	5a	5a	4a	4a	08: Stable; TMDL Sept. 2006
CROSS L	T17 R05 WELS	1674	2515	0101000303	(5a)	5a	5a	4a	4a	08: Stable; TMDL Sept. 2006
ECHO L	PRESQUE ISLE	1776	90	0101000412	(5a)	5a	5a	5a	4a	08: Improv.; TMDL Feb. 2007
MADAWASKA L	T16 R04 WELS	1802	1526	0101000413	(5a)	4a	4a	2 *	2 *	08: Stable, occasional bloom; persistent improvement; TMDL 2000
MONSON P	FORT FAIRFIELD	1820	160	0101000413	(5a)	5a	5a	5a	4a	08: Stable; TMDL Nov. 2006
SEBASTICOOK L	NEWPORT	2264	4288	0103000308	(5a)	4a	4a	4a	4a	08: Slow Improv.; TMDL 2001
HERMON P	HERMON	2286	461	0102000511	(5a)	5a	5a	5a	5a	08: Stable; TMDL being reviewed 2008
HAMMOND P	HAMPDEN	2294	83	0102000511	(5a)	5a	5a	5a	5a	08: Stable; TMDL being reviewed 2008
TOOTHAKER P	PHILLIPS	2336	30	0103000305	(3)	5a	5a	4a	4a	08: Stable; TMDL Sept. 2004
HIGHLAND L	BRIDGTON	3454	1401	0106000101	(5a)	5a	5a	2*	2*	08: TMDL Aug 2004; data indicates persistent stable trend
HIGHLAND (DUCK) L	FALMOUTH	3734	634	0106000103	(5a)	5a	4a	4a	4a	08: TMDL 2003; trophic concerns persist; appears stable possibly deteriorating
SABATTUS P	GREENE	3796	1962	0104000210	(5a)	5a	5a	4a	4a	08: Stable perhaps Improving; TMDL August 2004
WILSON P	WAYNE	3832	582	0103000311	(3)	3	2	5a	4a	08: deteriorating trophic trend – all trophic param.; TMDL Aug. 2007
MOUSAM L	ACTON	3838	900	0106000302	(5a)	5a	4a	2*	2*	08: Attainment of monitored uses verified. Data collected since listing and over long-term record indicate stable trend.
UNITY P	UNITY	5172	2528	0103000309	(5a)	5a	5a	4a	4a	08: Stable; TMDL Sept 2004

2008 Maine Integrated Water Quality Report

Table 8-2 Status of Category 5a / TMDL Lakes: 2000 through 2008 ¹

Lake	Town	MIDAS	Acres	HUC10	List Cat 00 ²	List Cat 02	List Cat 04	List Cat 06	List Cat 08	Comments
LOVEJOY P	ALBION	5176	324	0103000309	(5a)	5a	5a	4a	4a	08: Stable; TMDL 2004
COBBOSSEECONTEE L	WINTHROP	5236	5543	0103000311	(5a)	4a	4a	2*	2*	08: persistent improvement
PLEASANT (MUD) P	GARDINER	5254	746	0103000311	(5a)	5a	4a	4a	4a	08: Stable -blooms persist; TMDL complete 2004
LONG P	BELGRADE	5272	2714	0103000310	(3)	3	3	5a	5a	08: Deterior. trophic&DO; Gloeotrichia blooms; trophic param. indicate shift
EAST P	SMITHFIELD	5349	1823	0103000310	(5a)	4a	4a	4a	4a	08: blooms persist; deteriorating trophic trend continues; TMDL 2001
WEBBER P	VASSALBORO	5408	1201	0103000312	(5a)	5a	4a	4a	4a	08: Stable; chronic blooms; TMDL 2003
THREEMILE P	CHINA	5416	1162	0103000312	(5a)	5a	4a	4a	4a	08: Stable; chronic blooms; TMDL 2003
THREECORNERED P	AUGUSTA	5424	182	0103000312	(5a)	5a	4a	3	3	08: TMDL 2003;Improving; no recent blooms; additional time/data needed to verify
CHINA L	CHINA	5448	3845	0103000309	(5a)	4a	4a	4a	4a	08: Stable -blooms persist; TMDL 2001.
DUCKPUDDLE P	NOBLEBORO	5702	293	0105000303	(5a)	5a	5a	3	3	08: Stable; TMDL Sept 2005 (note-bloomed in 2005)
LONG L	BRIDGTON	5780	4867	0106000101	(5a)	5a	5a	2*	2*	08: TMDL May 2005; Data collected since listing and over long-term record indicate stable trend.
COBBOSSEECONTEE (LT)	WINTHROP	8065	75	0103000311	(5a)	5a	5a	4a	4a	08: Stable occasional bloom; TMDL 2005
TRAFTON L	LIMESTONE	9779	85	0101000413	(5a)	5a	5a	5a	4a	08: Stable; TMDL Oct. 2006
TOGUS P	AUGUSTA	9931	660	0103000312	(5a)	5a	5a	4a	4a	08: Stable; TMDL Sept 2005
SEWALL P	ARROWSIC	9943	46	0105000307	(3)	3	5a	4a	4a	08: Stable; TMDL March 2006
ANNABESSACOOK L	MONMOUTH	9961	1420	0103000311	(5a)	5a	4a	4a	4a	08: blooms persist; possible improvement; TMDL 2004

¹ Non TMDL listing changes are summarized in Appendix III, Category Listing Change Summary – pgs. 86 and 87.

² In 2000, current Listing Categories had not been established. Equivalent Listing Categories have been assigned for purposes of comparison.

* Lakes currently listed in Category 2 do not appear individually in Appendix III but rather are included in the overall lake summary for the HUC.

Table 8-3 2004 Category 5/TMDL Estuarine/Marine Waters not on 2006 Category 5/TMDL List

Waterbody ID	DMR Area	Segment Description	2004 List Cat	2006 List Cat	Delisting Reason
730-7	22-F	Ovens Mouth - Sherman Creek Boothbay - Edgecomb	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
724-10	27	St. George River	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
722-33	37-I	Western Cove, Stinson Neck, Deer Isle	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
707-6	42	Bass Harbor and Eastern Duck Cove	5B-1	2	Erroneously listed in 2004. Monitoring shows attainment of Class SB for fecals.
714-7	48	Thomas Bay, Bar Harbor	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
705-2	53-C	Back Bay, Milbridge	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
701-3	56-I	Canal Cove, Seward Neck, Lubec	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.
701-4	56-J	Sipp Bay, Perry and Robinston	5B-1	2	Monitoring shows attainment of Class SB criteria for fecals.

2008 Maine Integrated Water Quality Report

Table 8-4 presents specific Causes of River and Stream impairment for which a Total Maximum Daily Load report (TMDL) must be (or has been) prepared and the schedule that has been established to accomplish it. It is important to note that segments may appear multiple times, in cases where a TMDL is required to address multiple causes of impairment. This list has been presented in this format in keeping with the manner in which the EPA Assessment Database (ADB) stores and reports this information.

Table 8-4 Causes of River and Stream impairment for which a Total Maximum Daily Load Report (TMDL) must be (or has been) prepared

ID305B	WATER_NAME	CATEGORY	CAUSE_NAME	TMDL STATUS	DUE DATE	PRIOR-ITY	APPROVED
ME0101000105_103R01	Shields Branch of Big Black R	5A	Escherichia coli		2012		
ME0101000105_103R01	Shields Branch of Big Black R	5A	"Oxygen, Dissolved"		2012		
ME0101000121_117R	St. John River at Madawaska	5B2	Escherichia coli		2011	L	
ME0101000303_124R01	Dickey Brook	4A	Nutrient/Eutrophication Biological Indicators	"Category 4A--TMDL approved by EPA with Daigle Pond/Cross Pond TMDL September 28, 2006."			9/28/06
ME0101000303_124R01	Dickey Brook	4A	"Oxygen, Dissolved"	"TMDL approved by EPA September 28, 2006- submitted with Daigle Pond/Cross Pond TMDL ."			9/28/06
ME0101000303_124R02	Daigle Brook	4A	Nutrient/Eutrophication Biological Indicators	TMDL approved with Daigle Pond and Cross Lake TMDL 9/2006			9/28/06
ME0101000303_124R02	Daigle Brook	4A	"Oxygen, Dissolved"	TMDL included in Daigle Pond/ Cross Lake TMDL; approved by EPA 9/28/2006			9/28/06
ME0101000412_140R02	Dudley Brook (Chapman)	5A	Benthic-Macroinvertebrate Bioassessments	AVGWLF modeling and TMDL contract	2008	M	
ME0101000412_140R03_01	Presque Isle Stream at Presque Isle	4A	Ammonia (Un-ionized)	EPA approved TMDL 8/22/2000			8/22/00
ME0101000412_140R03_01	Presque Isle Stream at Presque Isle	4A	"BOD, Biochemical oxygen demand"	EPA approved TMDL			8/22/00

2008 Maine Integrated Water Quality Report

ME0101000412_140R03_01	Presque Isle Stream at Presque Isle	4A	Phosphorus (Total)	EPA approved TMDL			8/22/00
ME0101000412_140R03_02	N Br Presque Isle Stream	5D	DDT		2012	L	
ME0101000412_140R04	"Hanson Brook- formerly ""Unnamed Stream (P.I. airport)""	5A	Benthic-Macroinvertebrate Bioassessments	"new listing, not started"	2012	H	
ME0101000412_143R01	Everett Brook (Ft. Fairfield)	5A	"Oxygen, Dissolved"	"AVGWLF modeling and TMDL report under contract"	2008		
ME0101000413_145R01	Little Madawaska River and tributaries	4B-1	Benthic-Macroinvertebrate Bioassessments	4B- Superfund remediation project complete		L	
ME0101000413_145R01	Little Madawaska River and tributaries	4B-1	Polychlorinated biphenyls	4-b- Superfund remediation project is complete; expected to attain standards		L	
ME0101000413_145R02	Greenlaw Stream	4B-1	Polychlorinated biphenyls			L	
ME0101000413_146R01	Webster Brook	5B	Escherichia coli		2012	L	
ME0101000501_149R	Minor tributaries to Prestile Stream above dam in Mars Hill	5D	DDT	5-d listed for legacy pollutant- DDT	2020	L	
ME0101000501_149R01	Prestile Stream above dam in Mars Hill	5A	Benthic-Macroinvertebrate Bioassessments	"AVGWLF modeling and TMDL report under contract"	2008	H	
ME0101000501_149R01	Prestile Stream above dam in Mars Hill	5A	DDT	5-d listed for legacy pollutant - DDT	2020	L	
ME0101000501_149R01	Prestile Stream above dam in Mars Hill	5A	Nutrient/Eutrophication Biological Indicators	"AVGWLF modeling and TMDL report under contract"	2008	H	
ME0101000501_149R01	Prestile Stream above dam in Mars Hill	5A	"Oxygen, Dissolved"	"AVGWLF modeling and TMDL report under contract"	2008		
ME0101000501_150R	Prestile Str and tributaries entering below dam in Mars	5D	DDT	5-d legacy pollutant		L	
ME0101000504_152R01_01	Meduxnekeag River	4A	Phosphorus (Total)				3/8/01
ME0101000504_152R01_02	Meduxnekeag River	5D	DDT	5d listed for legacy pollutant- DDT	2020	L	
ME0102000110_	Millinocket Stream (Millinocket)	5A	Escherichia coli		2008	H	

2008 Maine Integrated Water Quality Report

205R03							
ME0102000402_219R_02	Piscataquis River at Dover Foxcroft	5B2	Escherichia coli		2009	M	
ME0102000402_219R01	Piscataquis R	5A	"Oxygen, Dissolved"		2009		
ME0102000403_215R_02	Sebec River at Milo	5B2	Escherichia coli		2009	L	
ME0102000404_216R01_01	W. Br. Pleasant R (KIW Twp)	5D	Iron	legacy pollutant- iron	2012	L	
ME0102000404_216R01_02	Blood Bk (KIW Twp)	5D	Iron	legacy pollutant- iron	2012	L	
ME0102000502_230R	Penobscot R	5A	Nutrient/Eutrophication Biological Indicators	Requires more monitoring data	2009		
ME0102000502_230R	Penobscot R	5A	"Oxygen, Dissolved"	Requires more monitoring data	2009		
ME0102000502_231R	Penobscot R	5A	"Dioxin (including 2,3,7,8-TCDD)"	4b listed; expected to attain		L	
ME0102000502_231R	Penobscot R	5A	Nutrient/Eutrophication Biological Indicators		2009	H	
ME0102000502_231R	Penobscot R	5A	"Oxygen, Dissolved"	Additional monitoring 2007	2009	H	
ME0102000502_231R	Penobscot R	5A	Polychlorinated biphenyls	legacy pollutant- 5d	2020	L	
ME0102000503_221R01	Cold Stream (Enfield) downstream of hatchery	4B-1	Benthic-Macroinvertebrate Bioassessments	draft fish hatchery permit should address impairment	2008	L	
ME0102000506_222R01	Costigan Str (Costigan)	5A	Escherichia coli		2008		
ME0102000506_222R01	Costigan Str (Costigan)	5A	"Oxygen, Dissolved"		2008		
ME0102000506_232R	Penobscot R	4B-1	"Dioxin (including 2,3,7,8-TCDD)"	Expected to attain	2020		
ME0102000509_226R01	Otter Stream	5B	Escherichia coli		2012	L	
ME0102000509_226R02	Boynton Brook	5B	Escherichia coli		2012	L	
ME0102000509_233R_01	Penobscot R	5D	"Dioxin (including 2,3,7,8-TCDD)"		2020	L	
ME0102000509_233R_01	Penobscot R	5D	Polychlorinated biphenyls	Category 5d for legacy PCB contamination	2020	L	

2008 Maine Integrated Water Quality Report

ME0102000509_233R_02	Penobscot River at Orono	5B2	Escherichia coli	5b2- CSO permit controls in place	2012	L	
ME0102000509_233R_03	Penobscot River at Old Town-Milford	5B2	Escherichia coli		2014	L	
ME0102000510_224R01	Burnham Brook (Garland)	5A	"Oxygen, Dissolved"		2012	L	
ME0102000510_224R02	Kenduskeag Stream	5B	Escherichia coli		2012	L	
ME0102000510_224R03	French Stream (Exeter)	5A	Benthic-Macroinvertebrate Bioassessments		2012	M	
ME0102000510_224R04	Birch Stream (Bangor)	4A	Benthic-Macroinvertebrate Bioassessments	EPA approved TMDL 9/12/07		L	9/12/07
ME0102000510_224R05	Capehart (Pushaw) Brook (Bangor)	5A	Habitat Assessment (Streams)	Public review draft expected March 2008	2008	H	
ME0102000510_224R06	Arctic Brook (near Valley Ave Bangor)	5A	Benthic-Macroinvertebrate Bioassessments	Draft TMDL is complete; needs Public Review	2008	H	
ME0102000510_224R06	Arctic Brook (near Valley Ave Bangor)	5A	Habitat Assessment (Streams)	Draft TMDL is complete; needs Public Review	2008	H	
ME0102000511_225R01_02	"Shaw Brook (Bangor, Hampden)"	5A	Benthic-Macroinvertebrate Bioassessments	Public review draft TMDL expected March 2008	2008	H	
ME0102000511_225R01_02	"Shaw Brook (Bangor, Hampden)"	5A	Habitat Assessment (Streams)	"Public review draft TMDL expected March 2008	2008		
ME0102000511_225R02	Sucker Brook (Hampden) (formerly 'Unnamed St.-Hampden')	5A	Benthic-Macroinvertebrate Bioassessments	not started	2012		
ME0102000511_225R02	Sucker Brook (Hampden) (formerly 'Unnamed St.-Hampden')	5A	"Oxygen, Dissolved"	not started	2012		
ME0102000513_226R03	Penjawoc Stream (Bangor) Meadow Bk (Bangor)	5A	Benthic-Macroinvertebrate Bioassessments	"Public review draft TMDL complete; due to be revised and re-submitted to EPA	2008		
ME0102000513_226R03	Penjawoc Stream (Bangor) Meadow Bk (Bangor)	5A	Habitat Assessment (Streams)	Public review draft TMDL complete; due to be revised and re-submitted to EPA	2008	H	

2008 Maine Integrated Water Quality Report

ME0102000513_226R03	Penjawoc Stream (Bangor) Meadow Bk (Bangor)	5A	"Oxygen, Dissolved"	Public review draft TMDL complete; due to be revised and re-submitted to EPA	2008		
ME0102000513_234R	Penobscot River	5B2	Escherichia coli		2013	L	
ME0102000513_234R02	Penobscot	5D	"Dioxin (including 2,3,7,8-TCDD)"		2020		
ME0102000513_234R02	Penobscot	5D	Polychlorinated biphenyls	5d-legacy PCBs	2020	L	
ME0103000304_313R01	Mill Stream (Embden)	4B-1	Benthic-Macroinvertebrate Bioassessments	Hatchery permit issued; expiration date 1/30/2011. Expected to attain standards		L	
ME0103000305_315R_02	Unnamed Stream trib to Sandy R (Avon-Dunham Hatchery)	4B-1	Benthic-Macroinvertebrate Bioassessments	4-b Expected to attain- Hatchery is closed; permit was issued 10/18/2005		L	
ME0103000305_319R_02	"Sandy R,"	5A	Benthic-Macroinvertebrate Bioassessments	flows too high in 2006; unable to collect monitoring data required for TMDL. Next monitoring due in 2007	2008	H	
ME0103000306_314R02	Cold Stream (Skowhegan)	5A	Benthic-Macroinvertebrate Bioassessments	Monitoring in 2006; TMDL not started	2010	H	
ME0103000306_320R02	Currier Brook	5B	Escherichia coli		2012	L	
ME0103000306_320R03	Whitten Brook (Skowhegan)	5A	Benthic-Macroinvertebrate Bioassessments	Public review draft of TMDL near completion	2008	H	
ME0103000306_320R03	Whitten Brook (Skowhegan)	5A	Escherichia coli	not started	2009	H	
ME0103000306_320R03	Whitten Brook (Skowhegan)	5A	Habitat Assessment (Streams)	Public review draft of TMDL near completion	2008	H	
ME0103000306_320R04	Mill Stream (Norridgewock)	5A	Benthic-Macroinvertebrate Bioassessments		2010	M	
ME0103000306_338R_04	"Kennebec R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0103000306_338R_04	"Kennebec R,"	5D	Polychlorinated biphenyls	Legacy PCBs	2020	L	

2008 Maine Integrated Water Quality Report

ME0103000306_339R_02	"Kennebec R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0103000306_339R_02	"Kennebec R,"	5D	Polychlorinated biphenyls	not started- legacy PCB problem	2020	L	
ME0103000306_339R_03	"Kennebec River, near Fairfield"	5B2	Escherichia coli	5b2- CSO permit in place	2013	L	
ME0103000307_330R	W Branch of Sebasticook R	5D	"Dioxin (including 2,3,7,8-TCDD)"	not started	2011	M	
ME0103000307_330R	W Branch of Sebasticook R	5D	Polychlorinated biphenyls	not started	2011	M	
ME0103000308_325R01	East Branch Sebasticook River Corundel Pd to Sebasticook L	4B-1	Benthic-Macroinvertebrate Bioassessments			L	
ME0103000308_325R01	East Branch Sebasticook River Corundel Pd to Sebasticook L	4B-1	Benzene	Superfund remediation should fix impairment	2012	L	
ME0103000308_325R01	East Branch Sebasticook River Corundel Pd to Sebasticook L	4B-1	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0103000308_325R01	East Branch Sebasticook River Corundel Pd to Sebasticook L	4B-1	Polychlorinated biphenyls			L	
ME0103000308_325R02	Brackett Brook (Palmyra)	5A	"Oxygen, Dissolved"		2012		
ME0103000308_325R03	Mulligan Stream (St. Albans)	5A	"Oxygen, Dissolved"	TMDL monitoring in 2006	2010	M	
ME0103000308_331R	E Branch of Sebasticook R	5A	"Dioxin (including 2,3,7,8-TCDD)"	legacy pollutant		L	
ME0103000308_331R	E Branch of Sebasticook R	5A	"Oxygen, Dissolved"	Eutrophic lake source with lake TMDL complete;	2012	L	
ME0103000308_331R	E Branch of Sebasticook R	5A	Phosphorus (Total)	in progress	2008	H	
ME0103000308_331R	E Branch of Sebasticook R	5A	Polychlorinated biphenyls	"5d listed, legacy pollutant"		L	
ME0103000308_331R01	Martin Stream (Dixmont)	4B-1	Ammonia (Un-ionized)			L	
ME0103000308_331R01	Martin Stream (Dixmont)	4B-1	Benthic-Macroinvertebrate Bioassessments			L	
ME0103000308_332R	Sebasticook R	5A	"Dioxin (including 2,3,7,8-TCDD)"	Legacy upstream sources m(W.Br. Sebasticook); TMDL not started ; low priority	2011	L	

2008 Maine Integrated Water Quality Report

ME0103000308_332R	Sebasticook R	5D	Polychlorinated biphenyls	legacy PCB contamination	2050	L	
ME0103000309_327R01	Mill Stream (Albion)	5A	"Oxygen, Dissolved"		2012		
ME0103000309_332R	Sebasticook River	5A	"Dioxin (including 2,3,7,8-TCDD)"	Legacy upstream sources m(W.Br. Sebasticook); TMDL not started	2011	L	
ME0103000309_332R	Sebasticook River	5B	Escherichia coli	5b2 CSO permit in place; expected to attain standards		L	
ME0103000309_332R_01	Sebasticook River (Halifax Impd.)	5A	Dioxin (including 2,3,7,8-TCDD)	not started pending dam removal decision	2011	M	
ME0103000310_322R01	Fish Brook (Fairfield)	4A	Benthic-Macroinvertebrate Bioassessments	EPA approved TMDL 8/30/05			8/30/05
ME0103000310_322R01	Fish Brook (Fairfield)	4A	"Oxygen, Dissolved"	EPA approved TMDL 8/30/2005			8/30/05
ME0103000311_334R03	Jock Stream (Wales)	5A	Nutrient/Eutrophication Biological Indicators	not started	2009		
ME0103000311_334R03	Jock Stream (Wales)	5A	"Oxygen, Dissolved"	not started	2009		
ME0103000311_334R04	Mill Stream (Winthrop)	5A	Benthic-Macroinvertebrate Bioassessments	TMDL monitoring in 2005; biomonitoring in 2004	2009	M	
ME0103000311_334R04	Mill Stream (Winthrop)	5A	Cause Unknown	TMDL monitoring in 2005; biomonitoring in 2004	2009	M	
ME0103000311_334R05	Cobbossee Stream (Gardiner)	4A	Phosphorus (Total)	EPA approved TMDL 5/20/2004 (under Pleasant Pond TMDL)			5/20/04
ME0103000312_333R02	Whitney Brook (Augusta)	5B	Escherichia coli		2012	L	
ME0103000312_333R04	Unnamed tributary to Bond Brook	5A	Benthic-Macroinvertebrate Bioassessments	TMDL and Stream Team monitoring in 2005	2010	H	
ME0103000312_333R04	Unnamed tributary to Bond Brook	5A	Habitat Assessment (Streams)	TMDL and Stream Team monitoring in 2005	2010	H	
ME0103000312_335R03	Meadow Brook (Farmingdale)	5A	Benthic-Macroinvertebrate Bioassessments		2012	L	

2008 Maine Integrated Water Quality Report

ME0103000312_339R_01	"Kennebec R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"	expected to attain		L	
ME0103000312_339R_01	"Kennebec R,"	5D	Polychlorinated biphenyls	not started- legacy PCB contamination	2020	L	
ME0103000312_339R_02	"Kennebec River at Waterville, CSO"	5B2	Escherichia coli	5b CSO	2014	L	
ME0103000312_340R_01	"Kennebec R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0103000312_340R_01	"Kennebec R,"	5D	Polychlorinated biphenyls	not started- legacy PCB contamination	2020	L	
ME0103000312_340R_02	"Kennebec River at Augusta, including Riggs Brook- CSO"	5B2	Escherichia coli		2013	L	
ME0103000312_340R_03	Kennebec River at Hallowell- CSO	5B2	Escherichia coli		2008	L	
ME0103000312_340R_04	Kennebec River at Gardiner- Randolph	5B2	Escherichia coli		2014	L	
ME0103000312_427R	Merrymeeting Bay	5D	"Dioxin (including 2,3,7,8-TCDD)"				
ME0103000312_427R	Merrymeeting Bay	5D	Polychlorinated biphenyls	not started- legacy PCB contamination	2020	L	
ME0104000201_421R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0104000201_421R	Androscoggin R	5D	Polychlorinated biphenyls	5d PCB legacy pollutant	2020	L	
ME0104000202_421R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0104000202_421R	Androscoggin R	5D	Polychlorinated biphenyls	not started- 5d- legacy PCB contamination	2020	L	
ME0104000204_421R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0104000204_421R	Androscoggin R	5D	Polychlorinated biphenyls	not started- legacy PCBs- Category 5d	2020	L	
ME0104000204_422R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0104000204_422R	Androscoggin R	5D	Polychlorinated biphenyls	not started- legacy PCB contamination; Category 5-d	2020	L	
ME0104000205_410R01_02	Whitney Brook (Canton)	5A	Benthic-Macroinvertebrate Bioassessments		2012	M	
ME0104000205_410R01_02	Androscoggin R	5D	"Dioxin (including 2,3,7,8-			L	

2008 Maine Integrated Water Quality Report

422R			TCDD)"				
ME0104000205_422R	Androscoggin R	5D	Polychlorinated biphenyls	not started- legacy PCB contamination; Category 5d	2020	L	
ME0104000206_423R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"	Legacy		L	
ME0104000206_423R	Androscoggin R	5D	Polychlorinated biphenyls	not started- legacy PCB contamination- Category 5d	2020	L	
ME0104000206_423R01	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"	Legacy		L	
ME0104000206_423R01	Androscoggin R	5D	Polychlorinated biphenyls	5d- legacy pcbs	2020	L	
ME0104000207_412R02	House/Lively Brook	4B	Nitrogen (Total)	Consent order for waste (manure) removal; site permit in place; expected to attain	2010	L	
ME0104000208_413R01	Jepson Brook (Lewiston)	5A	Benthic-Macroinvertebrate Bioassessments	May require Use Attainability Analysis	2012		
ME0104000208_413R01	Jepson Brook (Lewiston)	5A	Escherichia coli		2008		
ME0104000208_413R01	Jepson Brook (Lewiston)	5A	Habitat Assessment (Streams)	May require Use Attainability Analysis	2012	M	
ME0104000208_413R01	Jepson Brook (Lewiston)	5A	"Oxygen, Dissolved"	May require Use Attainability Analysis	2012	M	
ME0104000208_413R03	Stetson Brook (Lewiston)	5A	Escherichia coli		2009		
ME0104000208_413R03	Stetson Brook (Lewiston)	5A	"Oxygen, Dissolved"		2010		
ME0104000208_413R04	"Logan Brook, Auburn"	5A	Escherichia coli	Under bundled bacteria TMDL approach	2010	L	
ME0104000208_413R04	"Logan Brook, Auburn"	5A	Habitat Assessment (Streams)	City review of TMDL complete; revise/resubmit to EPA	2008	H	
ME0104000208_413R04	"Logan Brook, Auburn"	5A	"Oxygen, Dissolved"	City review of TMDL complete; revise/resubmit to EPA	2008	H	
ME0104000208_413R04	Gully Brook (Lewiston)	5A	Escherichia coli	not started	2009	M	

2008 Maine Integrated Water Quality Report

413R07							
ME0104000208_413R07	Gully Brook (Lewiston)	5A	"Oxygen, Dissolved"	not started	2012	M	
ME0104000208_424R	"Androscoggin R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"			L	
ME0104000208_424R	"Androscoggin R,"	5D	Polychlorinated biphenyls	not started; legacy PCBs- 5d listed	2020	L	
ME0104000208_424R_01	"Androscoggin R, GIP"	4A	"BOD, Biochemical oxygen demand"	EPA approved TMDL 7/18/05		H	7/18/05
ME0104000208_424R_01	"Androscoggin R, GIP"	5D	"Dioxin (including 2,3,7,8-TCDD)"	Legacy		L	
ME0104000208_424R_01	"Androscoggin R, GIP"	4A	"Oxygen, Dissolved"	EPA approved TMDL 7/18/05		H	7/18/05
ME0104000208_424R_01	"Androscoggin R, GIP"	4A	Phosphorus (Total)	EPA approved TMDL 7/18/05		H	7/18/05
ME0104000208_424R_01	"Androscoggin R, GIP"	5D	Polychlorinated biphenyls	Legacy		L	
ME0104000208_424R_01	"Androscoggin R, GIP"	4A	Total Suspended Solids (TSS)	EPA approved TMDL 7/18/05		H	7/18/05
ME0104000209_417R_02	Little Androscoggin River at Mechanic Falls	5B2	Escherichia coli		2012	L	
ME0104000210_413R02	Penley Brook (Auburn)	5A	"Oxygen, Dissolved"	not started	2010	M	
ME0104000210_418R01	Sabattus River between Sabattus and Androscoggin R	5A	Benthic-Macroinvertebrate Bioassessments	updated modeling report completed in 2006	2009	M	
ME0104000210_418R01	Sabattus River between Sabattus and Androscoggin R	5A	Nutrient/Eutrophication Biological Indicators	"Updated, revised modeling report completed 2006"	2009	M	
ME0104000210_418R01	Sabattus River between Sabattus and Androscoggin R	5A	"Oxygen, Dissolved"	"Updated, revised modeling report completed 2006"	2009	M	
ME0104000210_418R02	No Name Brook (Lewiston)	5A	Escherichia coli		2009		
ME0104000210_418R02	No Name Brook (Lewiston)	5A	"Oxygen, Dissolved"		2010		
ME0104000210_419R01	Unnamed Brook (Biomon Sta. 347-Lisbon Falls at Rt 196)	5A	Habitat Assessment (Streams)	not started	2010	H	
ME0104000210_419R02	Hart Brook (Lewiston) A.K.A Dill Brook and including Goff Bk	5A	Benthic-Macroinvertebrate Bioassessments	City review of TMDL complete;	2008	H	

2008 Maine Integrated Water Quality Report

ME0104000210_419R02	Hart Brook (Lewiston) A.K.A Dill Brook and including Goff Bk	5A	Escherichia coli	revise/resubmit to EPA	2009	L	
ME0104000210_419R02	Hart Brook (Lewiston) A.K.A Dill Brook and including Goff Bk	5A	Habitat Assessment (Streams)	City review of TMDL complete; revise/resubmit to EPA	2008	H	
ME0104000210_419R02	Hart Brook (Lewiston) A.K.A Dill Brook and including Goff Bk	5A	"Oxygen, Dissolved"	City review of TMDL complete; revise/resubmit to EPA	2008	H	
ME0104000210_420R01	Unnamed tributary 1 to Androscoggin R	5A	Habitat Assessment (Streams)		2012	L	
ME0104000210_420R02	Unnamed tributary 2 to Androscoggin R	5A	Habitat Assessment (Streams)		2012	L	
ME0104000210_420R03	Unnamed tributary 3 to Androscoggin R	5A	Habitat Assessment (Streams)		2012	L	
ME0104000210_420R04	Unnamed tributary 4 to Androscoggin R	5A	Habitat Assessment (Streams)		2012	L	
ME0104000210_425R_01	"Androscoggin R,"	5D	"Dioxin (including 2,3,7,8-TCDD)"	Legacy		L	
ME0104000210_425R_01	"Androscoggin R,"	5D	Polychlorinated biphenyls	legacy PCB contamination	2020	L	
ME0104000210_425R_02	"Androscoggin River, Lewiston-Auburn"	5B2	Escherichia coli		2017	L	
ME0104000210_426R	Androscoggin R	5D	"Dioxin (including 2,3,7,8-TCDD)"	Legacy		L	
ME0104000210_426R	Androscoggin R	5D	Polychlorinated biphenyls	legacy PCB contamination;	2020	L	
ME0105000201_507R01	Dennys River	4B-1	Polychlorinated biphenyls			L	
ME0105000203_508R02	Pottle Brook (Perry)	5B	Escherichia coli		2012	L	
ME0105000209_512R_02	McCoy Brook (Deblois)	5D	Benthic-Macroinvertebrate Bioassessments	Legacy- peat bog	2012	M	
ME0105000209_512R_02	McCoy Brook (Deblois)	5D	pH	legacy effect from abandoned peat mining- low pH	2012	L	
ME0105000209_512R_03	"Great Falls Branch, Schoodic Stream (Deblois)"	5A	Benthic-Macroinvertebrate Bioassessments		2012	M	
ME0105000213_514R_01	Card Brook (Ellsworth)	5A	Benthic-Macroinvertebrate Bioassessments	Some monitoring data collected	2012	M	

2008 Maine Integrated Water Quality Report

ME0105000213_514R_01	Card Brook (Ellsworth)	5A	Escherichia coli	Some monitoring data collected	2012	M	
ME0105000213_514R_01	Card Brook (Ellsworth)	5A	"Oxygen, Dissolved"	Some monitoring data collected	2012		
ME0105000217_520R01	Carleton Stream (Blue Hill)	4A	Benthic-Macroinvertebrate Bioassessments	EPA approved TMDL			10/7/04
ME0105000217_520R01	Carleton Stream (Blue Hill)	4A	Iron	EPA approved TMDL			10/7/04
ME0105000218_521R01	Warren Brook (Belfast)	5A	"Oxygen, Dissolved"		2012		
ME0105000220_522R01_01	Megunticook River (Camden)	5B	Escherichia coli		2012	L	
ME0105000220_522R02_01	Unnamed Brook (Camden)	5B	Escherichia coli		2012	L	
ME0105000220_522R03	Unnamed Brook (Rockport)	5B	Escherichia coli		2012	L	
ME0105000220_522R04	Unnamed Brook (Rockland)	5B	Escherichia coli		2012	L	
ME0105000305_528R01	Sheepscot River at Alna	5B	Escherichia coli	TMDL will be prepared under bundled bacteria TMDL approach.	2009	M	
ME0105000305_528R02	West Branch Sheepscot River	5A	"Oxygen, Dissolved"	"Draft sent to EPA 9/30/2005; requires revision and public review"	2009		
ME0105000305_528R03	Dyer River below Rt 215	5A	Escherichia coli	draft TMDL; apply new model	2009	H	
ME0105000305_528R03	Dyer River below Rt 215	5A	"Oxygen, Dissolved"	TMDL monitoring complete; apply new TMDL model	2009	H	
ME0105000305_528R04	Trout Brook (Alna)	5A	"Oxygen, Dissolved"	TMDL monitoring in 2005 and 2007	2009	M	
ME0105000305_528R05	Meadow Bk (Whitefield)	5A	"Oxygen, Dissolved"	"Dissolved oxygen monitoring in 2005;	2009		
ME0105000305_528R06	Carlton Bk (Whitefield)	5A	"Oxygen, Dissolved"	"Dissolved oxygen monitoring in 2005; TMDL monitoring in 2007"	2009		
ME0105000305_528R06	Choate Bk (Windsor)	5A	"Oxygen, Dissolved"	"Dissolved oxygen"	2009		

2008 Maine Integrated Water Quality Report

528R07				monitoring in 2005; TMDL monitoring in 2007			
ME0105000305_528R08_01	Chamberlain Bk (Whitefield)	5A	"Oxygen, Dissolved"	"Dissolved oxygen monitoring in 2005; TMDL monitoring in 2007"	2009		
ME0105000305_528R08_02	Sheepscot River below Sheepscot L (hatchery-affected)	4B-1	"Oxygen, Dissolved"	Hatchery permit provisions are expected to result in attainment; permit expiration date 2/20/11	2008	L	
ME0106000101_605R01	Mile Brook (Casco)	4B-1	Benthic-Macroinvertebrate Bioassessments	Expected to attain-hatchery permit issued		L	
ME0106000102_603R02	Chandler River including East Branch	5A	"Oxygen, Dissolved"		2012		
ME0106000102_603R06	Cole Brook (Gray)	5A	Benthic-Macroinvertebrate Bioassessments		2012	L	
ME0106000103_607R01	Black Brook (Windham)	5A	Escherichia coli	"Under bundled bacteria TMDL approach; TMDL monitoring in 2007;	2009		
ME0106000103_607R01	Black Brook (Windham)	5A	"Oxygen, Dissolved"	"TMDL monitoring in 2007;	2009		
ME0106000103_607R03	Colley Wright Brook (Windham)	5A	Escherichia coli	"TMDL monitoring in 2007; bundled bacteria TMDL"	2009		
ME0106000103_607R03	Colley Wright Brook (Windham)	5A	"Oxygen, Dissolved"	"TMDL monitoring in 2007; bundled bacteria TMDL"	2009		
ME0106000103_607R04	Piscataqua River (Falmouth)	5B	Escherichia coli	5b1--low priority recreational waters	2012	L	
ME0106000103_607R06	Hobbs Brook (Cumberland)	5A	Escherichia coli	TMDL monitoring 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R06	Hobbs Brook (Cumberland)	5A	"Oxygen, Dissolved"	TMDL monitoring 2007; Under bundled bacteria TMDL approach	2009		

2008 Maine Integrated Water Quality Report

ME0106000103_607R07	Inkhorn Brook (Westbrook)	5A	Escherichia coli	"TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R07	Inkhorn Brook (Westbrook)	5A	"Oxygen, Dissolved"	"TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R08	Mosher Brook (Gorham)	5A	Escherichia coli	TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R08	Mosher Brook (Gorham)	5A	"Oxygen, Dissolved"	TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R09	Otter Brook (Windham)	5A	Escherichia coli	TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R09	Otter Brook (Windham)	5A	"Oxygen, Dissolved"	TMDL monitoring in 2007; Under bundled bacteria TMDL approach	2009		
ME0106000103_607R10	Thayer Brook	5A	"Oxygen, Dissolved"		2010		
ME0106000103_607R11	Nason Brook (Gorham)	5B	Escherichia coli	"5-B, low priority, non-CSO, bacteria only waters"			L
ME0106000103_607R12	Pleasant River (Windham)	5A	Escherichia coli	"not started, new 303d listing"	2010		M
ME0106000103_607R12	Pleasant River (Windham)	5A	"Oxygen, Dissolved"	"not started, new 303d listing"	2010		M
ME0106000103_609R_02	Presumpscot River at Westbrook	5B2	Escherichia coli		2011		L
ME0106000104_611R02	Phillips Brook (Scarborough)	5A	Habitat Assessment (Streams)	TMDL monitoring in 2006	2009		M
ME0106000105_607R11_01	"Nasons Brook (Portland) south of Rt 25, trib to Fore River"	5A	Benthic-Macroinvertebrate Bioassessments	TMDL monitoring in 2006; TMDL internal draft	2008		H
ME0106000105_	Unnamed Stream (Portland 3)	5A	Benthic-Macroinvertebrate	not started	2012		M

2008 Maine Integrated Water Quality Report

609R01			Bioassessments				
ME0106000105_610R01	Capisic Brook	5A	Benthic-Macroinvertebrate Bioassessments	Draft sent to EPA 7/29/05 under bundled Urban Stream project; revise and resubmit	2008	H	
ME0106000105_610R01	Capisic Brook	5A	Habitat Assessment (Streams)	Draft sent to EPA 7/29/2005 under bundled urban stream report; revise and resubmit	2008	H	
ME0106000105_610R02	Clark Brook (Westbrook)	5A	"Oxygen, Dissolved"		2012		
ME0106000105_610R03	Long Creek (South Portland)	5A	Benthic-Macroinvertebrate Bioassessments	Internal draft TMDL; active stakeholder process is developing a Watershed Management Plan; final TMDL needs to be consistent with WMP.	2010	M	
ME0106000105_610R03	Long Creek (South Portland)	5A	Habitat Assessment (Streams)	Internal draft TMDL; active stakeholder process is developing a Watershed Management Plan; final TMDL needs to be consistent with WMP.	2010	M	
ME0106000105_610R04	"Stroudwater River (South Portland, Westbrook)"	5A	"Oxygen, Dissolved"		2012		
ME0106000105_610R05	Trout Brook (South Portland)	4A	Benthic-Macroinvertebrate Bioassessments	EPA approved TMDL 10/25/2007			10/25/07
ME0106000105_610R05	Trout Brook (South Portland)	4A	Habitat Assessment (Streams)	EPA approved TMDL 10/25/07			10/25/07
ME0106000105_610R06	Kimball Brook	5A	Benthic-Macroinvertebrate Bioassessments	not started	2012	M	
ME0106000105_610R06	Kimball Brook	5A	Habitat Assessment (Streams)	not started	2012	M	
ME0106000105_610R07	"Red Brook (Scarborough, S Portland)"	5A	Habitat Assessment (Streams)		2012	L	
ME0106000105_	"Red Brook (Scarborough, S	5A	Polychlorinated biphenyls		2012	L	

2008 Maine Integrated Water Quality Report

610R07	Portland"						
ME0106000105_610R08	Fall Bk (Portland)	5A	Habitat Assessment (Streams)		2012	L	
ME0106000105_610R09	Barberry Cr	4A	Benthic-Macroinvertebrate Bioassessments	EPA approved TMDL 6/21/2007 (under bundled urban stream project.)			6/21/07
ME0106000105_610R09	Barberry Cr	4A	Habitat Assessment (Streams)	Final TMDL approved by EPA;			6/21/07
ME0106000106_602R01	Frost Gully Brook	5A	Benthic-Macroinvertebrate Bioassessments	draft TMDL complete; Public review comments required changes to model	2008	H	
ME0106000106_602R01	Frost Gully Brook	5A	Escherichia coli	Draft complete; Public review comments required changes to model	2008	H	
ME0106000106_602R01	Frost Gully Brook	5A	Habitat Assessment (Streams)	draft complete; Public review comments required changes to model	2008	H	
ME0106000106_602R02	Mare Brook (Brunswick)	5A	Habitat Assessment (Streams)		2010	M	
ME0106000106_602R03	Concord Gully (Freeport)	5A	Habitat Assessment (Streams)	draft complete; Public review comments on draft TMDL required changes to model	2008	H	
ME0106000106_612R01_01	Goosefare Brook	4A	Cadmium	EPA approved TMDL complete			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Chromium (total)	EPA approved TMDL 9/29/2003			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Copper	EPA approved TMDL 9/29/2003			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Iron	EPA approved TMDL 9/29/2003			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Lead	EPA approved TMDL 9/29/2003			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Nickel	EPA approved TMDL 9/29/2003			9/29/03
ME0106000106_612R01_01	Goosefare Brook	4A	Zinc	EPA approved TMDL			9/29/03

2008 Maine Integrated Water Quality Report

612R01_01				9/29/2003			
ME0106000106_612R01_02	"Bear Brook, Saco"	5B2	Escherichia coli		2011	L	
ME0106000106_616R04	Bear Bk	5B	Escherichia coli		2012	L	
ME0106000204_618R01	Saco R	5B	Escherichia coli		2012	L	
ME0106000209_614R01	Ossippee R	5B	Escherichia coli		2012	L	
ME0106000210_615R01	Little Ossippee R	5A	Benthic-Macroinvertebrate Bioassessments	not started	2012	L	
ME0106000210_615R01	Little Ossippee R	5A	"Oxygen, Dissolved"	not started	2012	L	
ME0106000210_615R02	Brown Brook (Limerick)	5A	Benthic-Macroinvertebrate Bioassessments	TMDL monitoring in 2006	2009	M	
ME0106000210_615R02	Brown Brook (Limerick)	5A	Habitat Assessment (Streams)	TMDL monitoring in 2006	2009	M	
ME0106000211_616R	Wales Pond Brook (Hollis)	5A	Benthic-Macroinvertebrate Bioassessments	not started	2010	H	
ME0106000211_616R02	Tappan Bk	5B	Escherichia coli		2012	L	
ME0106000211_616R03	Sawyer Bk	5B	Escherichia coli		2012	L	
ME0106000211_616R05	Thatcher Bk (Biddeford)	5A	Benthic-Macroinvertebrate Bioassessments	New listing; Not started	2012	M	
ME0106000211_616R05	Thatcher Bk (Biddeford)	5A	Escherichia coli		2009	L	
ME0106000211_616R06	Swan Pond Brook at South Street (Biddeford)	5B	Escherichia coli		2012	L	
ME0106000211_619R01	Saco River at Biddeford-Saco	5B2	Escherichia coli		2013	L	
ME0106000301_622R01	Kennebunk River	5B	Escherichia coli		2012	L	
ME0106000301_622R02	Lord's Brook (Lyman)	5A	"BOD, Biochemical oxygen demand"	enforcement actions, technical support and permit revisions underway;		M	
ME0106000301_622R02	Lord's Brook (Lyman)	5A	Nutrient/Eutrophication Biological Indicators			M	
ME0106000301_622R02	Lord's Brook (Lyman)	5A	"Oxygen, Dissolved"			M	
ME0106000302_	"Mousam R,"	4A	Aluminum	EPA approved TMDL			3/8/01

2008 Maine Integrated Water Quality Report

628R01							
ME0106000302_628R01	"Mousam R,"	4A	Ammonia (Un-ionized)	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Arsenic	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	"BOD, Biochemical oxygen demand"	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Copper	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Lead	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Phosphorus (Total)	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Selenium	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Silver	EPA approved TMDL			3/8/01
ME0106000302_628R01	"Mousam R,"	4A	Zinc	EPA approved TMDL			3/8/01
ME0106000302_628R02	Mousam River at Sanford	5B2	Escherichia coli		2008	L	
ME0106000303_624R01	"Stevens Brook (Wells, Ogunquit)"	5A	Benthic-Macroinvertebrate Bioassessments	TMDL data collected in 2006	2009	M	
ME0106000304_625R01	Adams Brook (Berwick)	5A	Benthic-Macroinvertebrate Bioassessments	TMDL data collected in 2006	2009	M	
ME0106000304_625R03	West Brook (N. Berwick)	5A	"1,1-Dichloroethane"	not started	2012		
ME0106000304_625R03	West Brook (N. Berwick)	5A	"1,2-Dichloroethane"	not started	2012		
ME0106000304_625R03	West Brook (N. Berwick)	5A	"Oxygen, Dissolved"	not started	2012		
ME0106000305_630R01	Salmon Falls R	4A	Ammonia (Un-ionized)	EPA approved TMDL 11/22/99		L	11/22/99
ME0106000305_630R01	Salmon Falls R	4B	"Dioxin (including 2,3,7,8-TCDD)"	4-b expected to attain	2008		
ME0106000305_630R01	Salmon Falls R	5B2	Escherichia coli	NH data and TMDL	2008		
ME0106000305_630R01	Salmon Falls R	4A	Nutrient/Eutrophication Biological Indicators	EPA approved TMDL 11/22/99			11/22/99
ME0106000305_630R01	Salmon Falls R	4A	"Oxygen, Dissolved"	EPA approved TMDL			11/22/99

2008 Maine Integrated Water Quality Report

630R01				11/22/99			
ME0106000305_ 630R01	Salmon Falls R	5B2	Polychlorinated biphenyls	not started; legacy PCBs	2020	L	

Table 8-5 Lake TMDL Current Project Update

Lake	Lake ID	Pollutants	Project Status	Priority *	TMDL Submittal Target**
CHRISTINA RESERVOIR	9525	Total phosphorus	Preliminary draft	3	2009
HAMMOND P	2294	Possible natural condition	TMDL being prepared in combination with Hermon P; draft awaiting sediment dating piece	1	2008
HERMON P	2286	Possible natural condition	TMDL being prepared in combination with Hammond P; draft awaiting sediment dating piece	1	2008
LONG P	5272	Dissolved oxygen; Total phosphorus	Preliminary draft	2	2008

Table 8-6 Estuarine/Marine Current TMDL Project Update

Segment	Assessment Unit ID & Pollutant	Project Status	TMDL Submittal Target
Mousam River Estuary	811-9, PS	Report Review	2008

CHAPTER 9 ACCESSING AND MANAGING DATA USED IN MAKING DECISIONS ON STATUS OF WATERS

Maine DEP Quality Management System

Contact: Malcolm Burson, DEP Quality Assurance Manager, Office of Policy Services

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Related Website: www.maine.gov/dep/qms.htm

- Please refer to the 2006 report for information on this subject.

Environmental and Geographic Analysis Database (EGAD)

Contact: Chris Halsted, EGAD Programmer/Analyst, DEP GIS Unit

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Groundwater Contact: Mark Holden, DEP BLWQ, Division of Environmental Assessment (DEA) Tel: (207) 287-7779 email: Mark.K.Holden@SPAM-ZAPmaine.gov

Related Website: www.maine.gov/dep/rwm/egad/

The Maine Environmental and Geographic Analysis Database (EGAD) stores site and water quality information in a relational database using Oracle technology and spatial locations using Environmental Systems Research Institute (ESRI) Spatial Database Engine (SDE) software. The database includes data from groundwater and surface water samples as well as sediment and biological samples and other pertinent information. To date (February 2008), data from the MDEP Biological Monitoring, SWAT (Surface Water Ambient Toxics) and Dioxin Monitoring programs have been fully incorporated into EGAD; data from the Marine Monitoring and Lakes Assessment programs have been partly incorporated.

Database functionalities exist to assess trends in water quality information, satisfy requests for data, assist in answering inquiries, provide automated analysis, reporting and map-making capability, and achieve rapid access to information for emergency response for hazardous materials spills. The EGAD system also allows complete integration of all data via spatial relationships. Water quality assessment results are stored in Maine's version of the EPA Assessment Database (ADB). MDEP envisions that all raw water quality data, in support of the Integrated Report will ultimately be stored in the EGAD database with a GIS-facilitated link to ADB assessments. By the end of 2008 EGAD will have upload links established to port Maine water quality data into the national EPA database, WQX. Additionally public access to Maine data will soon take a significant step forward by utilizing a Google Earth platform to geo-locate and browse Maine surface and ground water data via the Internet.

Graphic Analysis of groundwater-related data (time trend parameter analysis, etc.) can be done as well or in conjunction with mapping. Having immediate access saves time allowing for good municipal planning for wellhead protection and designation, selection

of data for analysis by the DEP, and export in response to requests. There are over 16,000 sites in the database, approximately 10,000 sample points as well as over 6 million lab analysis records. The database now includes surface water data which is discussed in another section of this report. There are many different Site Types (see related web site above). The common format of the EDD (Electronic Data Deliverable) permits quality control of large amounts of analyte data and associated which is submitted from laboratories. Approximately 1000 groundwater sites are added every year.

LISTINGS ON INDIVIDUAL WATERS

See Appendices II through IV (separate document) for listing information on specific waters.