



Mr. David Ladd, Municipal/Industrial Stormwater Coordinator
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017
david.ladd@maine.gov

September 20, 2013

Subject: Cumberland MS4 Annual Report
July 1, 2012 through June 30, 2013
General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer
Systems (MS4s)

Dear Mr. Ladd:

The Town of Cumberland, Maine is subject to the General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The General Permit was issued by the Maine Department of Environmental Protection (DEP) on July 1, 2008 and was effective from July 1, 2008 through June 30, 2013.

On behalf of the Town of Cumberland, Integrated Environmental Engineering, Inc. (Integrated Environmental) is providing an Annual Report documenting the activities completed between July 1, 2012 and June 30, 2013, during Permit Year 5 of the 2008-2013 General Permit cycle. The Annual Report can be found in Attachment A. Attachment B contains the required signatory certification for this Annual Report.

The General Permit, we are including in this transmittal a General Assessment of Compliance with the permit conditions and information on Monitoring Data collected.

If you have any questions regarding this letter or the attachments, please contact Kristie Rabasca at 207.415.5830 or krabasca@integratedenv.com, or Chris Bolduc at Cbolduc@cumberlandmaine.com or 207.829.2205

Sincerely,

Integrated Environmental Engineering, Inc.

A handwritten signature in black ink that reads "Kristie L. Rabasca".

Kristie L. Rabasca, P.E., LEED AP BD + C

cc. C. Bolduc, Town of Cumberland, Maine

Attachment A
Attachment B

Permit Year 5 Annual Report
Town Signatory Page for the Permit Year 5 Annual Report

Attachment A

Permit Year 5 Annual Report

Permit Year 5 Annual Report

for the

Stormwater Phase II Program

290 Tuttle Road
Cumberland, Maine 04021

September 2013

prepared for

The Town of Cumberland, Maine



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Cape Elizabeth, Maine 04107
Ph: 207-415-5830

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	MINIMUM CONTROL MEASURES (MCM'S) 1 TO 6	3
2.1	MCM 1 Public Education and Outreach Responsible Party: ISWG Education Coordinator	3
2.2	MCM 2 Public Involvement and Participation Responsible Party: ISWG Education Coordinator and the Director of Operations.	3
2.3	MCM 3 Illicit Discharge Detection and Elimination Responsible Party: Director of Public Services, Director of Planning	4
2.4	MCM 4 Construction Site Stormwater Runoff Control Responsible Party: Code Enforcement Officer, Director of Planning and Ransom Consulting, Inc	8
2.5	MCM 5 Post Construction Stormwater Management Responsible Party: Code Enforcement Officer and Director of Planning	10
2.6	MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations. Responsible Party: Director of Public Services	10

FIGURES

Figure 1:	Cumberland Urban Area
Figure 2:	Priority 1 Sub-Watershed PISC 3
Figure 3:	Priority 2 Sub-Watershed PISC 1
Figure 4:	Priority 3 Sub-Watershed PISC 2
Figure 5:	Priority 4 Sub-Watershed PISC 4
Figure 6:	Priority 5 Sub-Watershed PISC 5

APPENDICES

Appendix A:	Public Education Report (ISWG)
Appendix B:	Public Awareness Intercept Survey (ISWG)
Appendix C:	Public Participation Report (ISWG)
Appendix D:	Chapter 242 Stormwater Management – Stormwater Discharge Ordinance
Appendix E:	Dry Weather Outfall Inspection SOP
Appendix F:	Municipal Employee Training
Appendix G:	Ditch Inspection SOP
Appendix H:	Ditch Inspection Forms
Appendix I:	Sample Building Permit
Appendix J:	Sample Literature
Appendix K:	List of Planning Board Activities
Appendix L:	Construction Site Erosion Control Inspection Form
Appendix M:	Chapter 242 Stormwater Management Post Construction Ordinance
Appendix N:	List of Municipal Operations in the Urban Area
Appendix O:	Operation and Maintenance Procedures for Town facilities

1.0 INTRODUCTION

The Town of Cumberland, Maine currently maintains coverage under the General Permit for Discharge of Stormwater from a Small Municipal Separate Storm Sewer System (MS4 General Permit) for discharges from its Urbanized Area. (See Figure 1). As part of the MS4 General Permit, Cumberland is required to develop, implement and enforce a Stormwater Program Management Plan (Plan) that implements six Minimum Control Measures (MCM's). Besides evaluating the effectiveness of the Plan on a regular basis, the Town must submit an Annual Report to the Maine Department of Environmental Protection (Maine DEP) that provides documentation of the Town's activities in implementing the Plan.

This document, prepared on behalf of the Town of Cumberland by Integrated Environmental Engineering, Inc. (Integrated Environmental), is intended to satisfy the Town of Cumberland's obligation under the annual reporting requirements for Permit Year Five (PY5) for which the reporting period is July 1, 2012 to June 30, 2013. The annual report is normally due to Maine DEP on September 1 each year. The Town requested and the Maine DEP granted an extension to September 20, 2013.

In PY5 Cumberland continued to improve their ongoing good compliance in regards to stormwater program management. As mentioned in previous annual reports, the Town has an excellent track record during the first General Permit cycle and accomplished a tremendous amount of work in that time frame. In the second General Permit cycle, the Town continued to meet their permit requirements by and large while still suffering budget cuts and staff downsizing, particularly in operational staff. In Permit Year 5, Cumberland continued to suffer staff cuts in Public Works that made compliance challenging. However, the Town's Director of Operations, who serves as the storm water program manager, continued to make the storm water program a priority and worked diligently to provide staffing resources as much as possible to meet the Town's obligations. While challenged from both a budgetary and staffing standpoint, the Town still strove to meet its obligations under their Stormwater Program Management Plan with good success in PY5 as in previous years.

As in previous reporting years, this year the Town of Cumberland conducted outfall inspections, ditch inspections and continued assisting with the Shellfish Conservation Commission/Department of Marine Resources (DMR) sampling and analysis program.

During the reporting period, the Town of Cumberland continued to assign specific personnel the responsibility for performing stormwater tasks at their respective work site facilities. While the Director of Operations maintains overall responsibility for the program as stipulated in the Stormwater Program Management Plan, specific field tasks are assigned to individuals with the goal being ownership of those action items. By instilling a sense of ownership by individual employees and ensuring staff continuity for the tasks, the Town has an easier time scheduling and ultimately performing each required task in the appropriate time frame. This also provides for uniformity of each work task ensuring that things are done the same and with the required detail throughout the reporting period.

Several employees attended training during the reporting period for pollution prevention good housekeeping and construction runoff control. This training included an overview of the MS4 program and review of two relevant videos.

2.0 MINIMUM CONTROL MEASURES (MCM'S) 1 TO 6

2.1 MCM 1 Public Education and Outreach Responsible Party: ISWG Education Coordinator

The goals of MCM 1 are as follows:

1. To raise awareness that polluted stormwater runoff is the most significant source of water quality problems for Maine's waters;
2. To motivate people to use Best Management Practices (BMPs) which reduce polluted stormwater runoff ; and
3. To reduce polluted stormwater runoff as a result of increased awareness and utilization of BMPs.

2.1.1 BMP 1.1 to BMP 1.6

The Town of Cumberland, through the Interlocal Stormwater Working Group (ISWG) Education Coordinator, provided public education and outreach to Cumberland residents, businesses and community groups. The work completed during the reporting period included awareness raising and behavior change activities. A summary of the activities completed is documented in a report prepared by the ISWG Education Coordinator and is included Appendix A of this report. In addition to completing the activities, the General Permit required that the MS4s conduct an evaluation of the public education activities completed. An interceptor survey report which fulfills this requirement is included as Appendix B.

2.2 MCM 2 Public Involvement and Participation Responsible Party: ISWG Education Coordinator and the Director of Operations.

The goals of MCM 2 is to involve the public in both the planning and implementation process of improving water quality and reducing quantity via the stormwater program.

2.2.1 BMP 2.1 Public Notice Requirement: Cumberland's Permit Year 1, 2, 3, and 4 Annual Reports and Stormwater Program Management Plan are posted on the Town's website. Cumberland's PY 5 Annual Report will also be posted on the website. Additionally, Permit Year 4 and Permit Year 5 from the previous General Permit are posted for reference. Cumberland maintains a record of public meeting minutes on their website, and this pertains to stormwater issues as well. These can be reviewed at the Town's website at www.cumberlandmaine.com. The Town provides substantial information to the Public via the website that helps the community be involved in stormwater management.

For example, Cumberland's Stormwater tab of the Public Works webpage provides resources for the proper disposal of old pesticides and herbicides, information in the proper use of pesticides and herbicides; the proper disposal of yard waste; options for the proper disposal of Household Hazardous Waste and Universal Waste; literature about the care, function and maintenance of septic systems as well as links to yardscaping outreach programs through the www.thinkbluemaine.org website. Additionally, Cumberland, in conjunction with other area communities, provides options to residents for safe disposal of expired or unwanted medication.

2.2.2 BMP 2.2 Host Public Events: During Permit Year 5, Cumberland continued to implement this BMP through a regional event with the Cumberland County Soil and Water Conservation Service (CCSWCS) and the Inter-local Stormwater Working Group (ISWG) stakeholders in the form of a 5k road race, the Urban Runoff 5k. Held in Portland on April 21, 2012, the event was extremely successful and provided a tremendous opportunity to bring stormwater runoff pollution to the forefront of participant's and attendee's awareness. A full report of the event is included in Appendix C.

2.3 MCM 3 Illicit Discharge Detection and Elimination Responsible Party: Director of Public Services, Director of Planning

The goals of MCM 3 are as follows:

1. Develop a watershed based storm drain system infrastructure map;
2. Implement and enforce a non-stormwater discharge ordinance;
3. Develop and implement a prioritized dry weather outfall inspection plan; and
4. Develop and implement a strategy to detect any illicit discharges to the open ditch system within each MS4's highest priority watershed.

2.3.1 BMP 3.1.1 to 3.1.3 Develop a watershed based storm sewer system infrastructure map: During the previous permit cycle Cumberland embarked on an intensive effort to map the storm drain system in the Urban Area and has essentially completed the required mapping. The mapping system is a GIS based mapping system that geo-references structures and outfalls as well as maintains a database of the pertinent features of the system, such as structure type, size and location, outfall location, size and material type, pipe type, size and flow direction.

Mapping must be updated on a regular basis to reflect capital improvements and changes that occur to the system during the reporting period. During the reporting period there were no significant infrastructure improvements or changes required in the Urban Area's primary watershed. There were minor infrastructure repairs and some re- development that occurred in areas outside of the Urban Area. This infrastructure will be added to the mapping system once the infrastructure is accepted by the Town.

It should also be noted that once the new storm drain infrastructure is accepted by the Town, the data is added to the Town's cleaning and maintenance schedule for catch basin cleaning as part of the spring cleanup operations.

2.3.2 BMP 3.2.1 to 3.2.3 Adopt a Non-Stormwater Discharge Ordinance: The Town of Cumberland adopted the required ordinance on July 27, 2009. The ordinance is contained in Chapter 242 of the Zoning Ordinance as Article 1. A copy of the ordinance is included in Appendix D of this report.

2.3.3 BMP 3.3.1 to 3.3.8 Develop Dry Weather Outfall Inspection Program:

2.3.3.1 As noted in the Town's Stormwater Program Management Plan, Cumberland's priority watershed is the East Branch Piscataqua River (EBPR). Essentially this watershed encompasses the majority of the Urban Area from Main Street (Route

9) to about 600 feet (at Tuttle Road) and to about 1,200 feet (at Greeley Road) westerly of Middle Road. The remainder of the Urban Area drains easterly across Middle Road and Interstate 295 to Casco Bay.

2.3.3.2 The Town has delineated the EBPR watershed into five (5) manageable sub-watersheds to aid in performing dry weather inspections. These sub-watersheds are shown in Figures 2 through 6. The two highest priority sub-watersheds have been determined to be PISC 3: Hedgerow Drive to Greeley Road Area (See Figure 2) and PISC 1: Greeley High School Area (See Figure 3). The next highest priority watersheds delineated are PISC 2 (Farwell Avenue to Hill Crest Drive Area); PISC 4 (Meadow Lane to Catalpa Lane) and PISC 5 (Catalpa Lane to Maurice Way). The remainder of the EBPR watershed subarea was completed during PY5 and will be incorporated into GIS.

2.3.3.3 The Town has developed a Standard Operating Procedure (SOP) for Dry Weather Outfall Inspections. A copy of this SOP is included in Appendix E. This SOP clearly outlines the process for providing inspections within the Town's Urban Area. The SOP details the proper inspection protocols, required inspection forms, required recordkeeping and more importantly, defines what corrective action and notification is required when deficiencies are discovered. It should be noted that the SOP is also a living document and will be reviewed and updated as required.

2.3.3.4 The Town of Cumberland has opted to utilize Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine, Volume 1: Information for Program Managers; and Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine Volume 2: Standard Operating Procedures and Forms for data collection as stipulated in the Dry Weather Outfall Inspection SOP. The Town has opted to utilize paper forms and a three ring binder system for managing and storing the inspection information.

Considering the size of Cumberland's Urban Area and the number of outfalls that are currently monitored, this type of system is adequate for the next few years. However, it is still anticipated that the Town will be exploring utilizing a GIS based database system to track inspections and other salient data for the program as funding comes available.

2.3.3.5 Four Town of Cumberland Public Works employees attended a regional Stormwater Awareness training on March 26, 2013, hosted by the Town of Yarmouth. The training included a review of the MS4 program and the six Minimum Control Measures. While IDDE issues were discussed in general, the primary focus of the training was related to Pollution Prevention Good Housekeeping and Construction Runoff Control. The employees were tested on their knowledge and understanding of the material presented. A copy of the training agenda is included in Appendix F.

2.3.3.6 The procedure for addressing a suspected illicit discharge is outlined in the Dry Weather Outfall Inspection SOP. Please see section 2.3.3.3 and Appendix E.

2.3.3.7 During the reporting period the Town of Cumberland conducted dry

weather outfall inspections however the paper copies of the inspections were lost. A new procedure for inspections and monitoring has been developed and will be implemented during the next permit cycle.

Additionally, it should also be noted that Town staff did perform field inspections of outfalls in the second priority watershed, Coastal Drainage, as part of an ongoing monitoring program for shellfish protection. This work was conducted in conjunction with the Department of Marine Resources as well as the Cumberland Shellfish Conservation Commission. During the PY5 reporting period the Town of Cumberland and its partners captured eight (8) different sets of water quality samples for analysis by DMR. All samples were analyzed for fecal coliform bacteria.

These sample dates were July 10, 2012, July 31, 2012, August 29, 2012, September 19, 2012, September 26, 2012, February 20, 2013, April 10, 2013, and May 28, 2013.

As part of this ongoing sampling effort, the Town and its partners also provided inspections of the shoreline outfalls and documented perceived issues as a result. It is anticipated that the Department of Marine Resources (DMR) and the Town will continued the sampling effort throughout the fall of 2013. The Town of Cumberland is working with the DMR to expand the existing sampling program twofold to provide additional water quality data sets to help define and mitigate problems in this important watershed. Reports documenting the sampling conducted were not available from DMR at the time of this report.

- 2.3.4 BMP 3.4.1 and 3.4.2 Open Ditch Illicit Discharge Detection Program: In the PY 3 reporting period, the Town, in conjunction with Ransom, developed an Illicit Discharge Detection and Elimination Standard Operating Procedure (SOP) for ditches in the Urban Area. This SOP was developed in early spring of 2011 and became effective July 1, 2011. The implementation of the SOP began in PY4 and will be fully implemented by the end of PY5 (June 30, 2013).
 - 2.3.4.1 The SOP for Ditch Inspections is included in Appendix G. This SOP clearly outlines to process for providing inspections within the Town's Urban Area. The SOP details the proper inspection protocols, required inspection forms, required recordkeeping and more importantly, defines what corrective action and notification is required when deficiencies are discovered. It should be noted that the SOP is also a living document and will be reviewed and updated as required.
 - 2.3.4.2 In Permit Year 5 the Town of Cumberland implemented the ditch inspection program developed in PY 3. During the reporting period the Town performed ditch inspections on three roads in the priority watershed. As part of the inspections no illicit discharges were discovered, however several culverts were found to be inadequate, clogged or had failed. As a result of these inspections ditching was completed at all cross culverts for two of the roads and one culvert was replaced. Copies of the ditch inspections completed are contained in Appendix H

2.4 MCM 4 Construction Site Stormwater Runoff Control Responsible Party: Code Enforcement Officer, Director of Planning and third party inspectors.

The goal of this MCM is to develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the regulated small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. For specific permit requirements and suggestions, refer to MAINE DEP's General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems Part IV(H)(4).

2.4.1 BMP 4.1.1 AND 4.1.2 Developer Notification of Chapter 500 Stormwater Management: The Town of Cumberland provides notification to each developer on the permit application form in addition to verbal notification during the application submission. The Town continued to evaluate the effectiveness of the current notification system and it was determined that the current procedure provides adequate notification to developers and operators of sites within the Urban Area as well as the remaining areas of the Town. A sample Building Permit has been included in Appendix I. The Town also maintains a library of available information and handouts for contractors and developers as well. Several examples are included in Appendix J.

2.4.2. BMP 4.2.1 Develop and implement a mechanism to annually document every construction activity that disturbs one acre or more of area within the Urbanized Area: The Town of Cumberland previously used a tracking spreadsheet to document sites that passed through planning board and intended to use it to track inspections during construction. This practice proved impractical, and has been altered. The Town still maintains a list of sites that pass through planning board, but construction inspection documentation is maintained in the project files and is not summarized on a tracking spreadsheet. A copy of the list of sites that has passed through planning board is included in Appendix K. Of these sites, two are located in the urbanized area, and will disturb more than one acre of land: The R&N subdivision and the associated Maeve's Way subdivision both located off of Rt 1. Construction at these two locations was monitored by third party inspectors. As required by the General Permit, inspections for sediment and erosion control were conducted.

During the PY 3 reporting period the Town staff documented one project meeting the threshold of one acre of disturbance that occurred in the urban area, which is still ongoing during the entirety of PY 5. This specific project was the Raven Farm Sub Station Project; which is in the Coastal Watershed of the Urban Area. The Town's third party peer review consultant and a Maine DEP third party peer review consultant provided frequent erosion and sedimentation control inspections for the project in addition to Town staff oversight. The Town ensured that appropriate erosion and sedimentation control measures were installed and maintained as appropriate by the Contractor performing the construction. The final inspection is scheduled for September 2013.

2.4.3. BMP 4.3.1 to 4.3.4 Develop and implement a construction site inspection program:

2.4.3.1 The Town of Cumberland currently tracks development and construction activities through the Code Enforcement Officer as well as third party engineering firms retained to provide engineering review services and periodic field inspection services. This activity is tracked and managed by the Code Enforcement Officer via the Tracking

Spreadsheet. Typically construction sites are inspected on a regular basis by third party engineering firms as well as Town staff. Site inspections are performed prior to significant rain events as well as during milestone events during construction, such as prior to the start of construction activities to ensure erosion control measures and storm water BMP's are in place, during utility construction, and other critical points in the project construction.

2.4.3.2 The Town of Cumberland developed a standard inspection form to provide documentation of site inspections that are performed within the Urban Area and Town wide. This form is used by Town staff and third party inspectors when conducting construction site inspections within the Town. A sample of this form is included in Appendix L.

2.4.3.3 The Town uses the following procedure to track and notify developers and contractors of non-compliance issues and guidance for coming into compliance. Currently the Town uses a spreadsheet to track and notify developers of non-compliance issues. Typically, minor non-compliance issues that are discovered as part of the inspection process are discussed with the Contractor or responsible party immediately and a remediation plan of action developed for immediate implementation. In most cases this is sufficient to address the issue. For significant issues or failure to make the required remediation results in the issuance of a Notice of Violation that is tracked and followed up via spreadsheet. The Town currently issues the standard ten (10) day Notice to Cure as well as "Stop Work" order as required. During the PY5 reporting period the Town issued zero Notice of Violations for projects in the Urban Area.

2.4.3.4 The staff that performs site inspections for the Town of Cumberland is the Town's CEO, the Town Manager or professional staff from third party engineering firms. Currently, the Town Manager is a Maine licensed professional engineer experienced in erosion and sedimentation control and the staff of the third party engineering firms are supervised by Maine professional engineers. The Town's CEO, Mr. William Longley, received several training modules during the reporting period, however none were specific to stormwater. No training was specifically required this year.

2.5 MCM 5 Post Construction Stormwater Management Responsible Party: Code Enforcement Officer and Director of Planning.

The Goals of this Minimum Control Measure are to develop a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the permittee's MS4 as well as implement an ordinance or similar measure to ensure adequate long-term operation and maintenance of post construction BMPs. In addition this MCM is intended to ensure post construction BMPs are functioning as intended and to document and report annually to the Maine DEP all applicable post-construction related information.

2.5.1 2BMP 5.1.1 to 5.1.4 Implement Post Construction Stormwater Management Ordinance

- 2.5.1.1 The Town of Cumberland has determined that it will rely on the State permit process for the installation of post construction BMP's.
- 2.5.1.2 The Town of Cumberland adapted the Model Ordinance to Town format requirements and cross referenced existing Town Ordinances to provide the required regulation of sites in the Urban Area. The adapted ordinance was not substantially changed from the model ordinance and essentially meets the requirements of BMP 5.1.2.
- 2.5.1.3 The Town Council adopted the Post Construction Storm Water Management Ordinance on September 14, 2009. A copy of the ordinance is included in Appendix M.
- 2.5.1.4 The Town implemented the new ordinance during PY2. During PY3 there were three developments in the Urban Area that triggered this MCM and they were still under construction for the duration of PY 5, hence there were no inspections or reporting required.

- 2.5.2 BMP 5.2.1 and 5.2.2 Develop and implement and inspection program for post construction BMP's for which Owners or Operators have not hired a third party inspector:

This BMP does not apply to the Town of Cumberland since the Urban Area does not contain a lake at risk or an urban impaired stream.

- 2.6 MCM 6 Pollution Prevention/Good Housekeeping for Municipal Operations.
Responsible Party: Director of Public Services

The goals of MCM 6 are as follows:

- Develop an inventory of all municipal operations conducted in, on, or associated with facilities, buildings, golf courses, cemeteries, parks and open space owned or operated by regulated MS4s that have the potential to cause or contribute to stormwater or surface water pollution.
- Develop and implement written operation and maintenance procedures for the Town's highest priority watershed that includes maintenance schedules and inspection procedures to ensure long term operation of structural and non-structural controls that reduce stormwater pollution to the maximum extent practicable.
- Develop and implement operation and maintenance procedures for the remaining watersheds within the Urbanized Area.
- Prevent the accumulation of sediment by developing a program to sweep all publicly accepted paved streets and publicly owned paved parking lots as well as cleaning catch basins and other stormwater structures.
- Develop a SWPPP which will outline sources of potential stormwater pollutants and the methods by which these pollutants will be reduced or prevented from entering Waters of the State.

- 2.6.1 BMP 6.1.1 to 6.1.4 Operations at Municipally Owned Grounds and Facilities:

2.6.1.1 The Town of Cumberland conducted an inventory of municipal operations within the Urban Area that have the potential to cause or contribute to stormwater pollution. The results of the inventory include the Public Works Garage Facility (including the Town's transfer station operations) on Drowne Road, the SAD 51 Bus Maintenance Facility also on Drowne Road, Twin Brook Maintenance Facility on Tuttle Road and the Valhalla Golf Course Maintenance Facility on Valhalla Road. The inventory list is included in Appendix N.

2.6.1.2 The Town developed and implemented written Operations and Maintenance (O&M) procedures for identified facilities in the EBPR watershed during PY2. Each O&M procedure was distributed to the respective facility staff as required. Copies of the O&M procedures for each facility are included in Appendix O. During PY5 the Town continued to rely upon the written Operations and Maintenance Plans for each facility developed during PY2.

As part of the O&M Procedures continued implementation during PY5, the Town conducted monthly walkthroughs at each facility to ensure ongoing compliance with the operational plans. Initially a walk through was conducted with the Town's insurance carrier representative and was performed as part of required safety training, but since the initial walkthrough, this work has been conducted by specific Town staff in conjunction with the scheduled safety inspections.

2.6.1.3 The Town will develop and implement written Operations and Maintenance (O&M) procedures for identified facilities in the Coastal Drainage watershed during PY3. There are no municipal facilities identified in the Coastal Drainage Watershed.

2.6.1.4 As required by the General Permit the O&M procedures address alternative products, automobile maintenance, hazardous materials storage, landscaping and lawn care, parking lot and street cleaning, roadway and bridge maintenance, pest control, road salt application and storage, spill response and prevention, storm drain system cleaning, vehicle washing and vehicle fueling system.

2.6.2 BMP 6.2.1 and 6.2.2 Municipal Employee Training:

2.6.2.1 Training needs were identified by PY3 as required by the Stormwater Program Management Plan.

2.6.2.2 Training completed during Permit Year 5 is described under section 2.3.3.5 and Appendix F.

2.6.3 BMP 6.3.1 Street Sweeping: Public Services swept all roads within the Town as soon as weather conditions allowed following winter operations. Public Services also swept all municipal parking lots/paved area and the MSAD51 parking/paved areas as soon as weather conditions allowed following winter operations.

It should also be noted that sweeping operations started as soon as possible in the spring of 2013. By collecting this material as early as possible after snowmelt, less sand is deposited in the Town's storm drain and ditch system;

and ultimately the receiving waters. The Town's aggressive approach to sweeping is providing very good implementation of this BMP.

Additionally in PY5 the Town spread approximately 871 cubic yards of sand. The Town used both straight sand and sand/salt mix. In addition, the Town also applied rock salt in some areas of high traffic volume. During the spring of 2013, the Town recovered about 185 cubic yards of sand from their sweeping operations and about 11.5 cubic yards of sand from their catch basin cleaning operations. This represents a recovery rate of about 22.5%.

- 2.6.4 BMP 6.4.1 Catch Basin Cleaning: The Town cleaned 401 catch basins Town wide during PY4 reporting period. Residuals collected totaled 11.5 cubic yards. Catch basins installed during new construction will be added to the maintenance schedule for the next year.
- 2.6.5 BMP 6.5.1 Maintenance and Upgrade of Stormwater Conveyances and Outfalls: The Town of Cumberland maintains a Capital Improvement Program (CIP) that is used to plan for significant capital purchases or upgrades by the Town on a long term basis. The CIP includes programmed funding for road and stormwater projects throughout the Town based on prioritized need and available funding and is updated on a periodic basis. During the PY5 reporting period the Town continued its ongoing maintenance and upgrade of the storm drainage system town wide. Most of the improvements scheduled to be completed were outside the urbanized area during PY5. However, improvements made on Hillcrest, Farwell and Woodside were made within the urbanized area as identified during ditch inspections (see Section 2.3.4.2).

Rehabilitation of drainage systems for Hemlock Drive and Balsam Drive's was scheduled to be completed during PY5, however this work was postponed due to funding availability.

- 2.6.6 BMP 6.6.1 and 6.6.2 Stormwater Pollution Prevention Plans (SWPPP's):
 - 2.6.6.1 During PY 2 additional copies of Town's existing SWPPP's were fabricated and distributed to each facility and staff person to ensure the plan was available and implemented. Additionally, Cumberland staff attended SWPPP training in PY 2 sponsored by ISWG and the MDEP. PY 5 saw Cumberland continue with normal facility operations under the guidance of their respective SWPPP's.
 - 2.6.6.2 As noted above, during PY2 the existing SWPPP files were fabricated and redistributed to their respective facilities as required. It should also be noted that Town staff from each facility attended refresher training sponsored by the MDEP regarding the implementation of SWPPP's. Again, as noted above, PY 5 saw Cumberland continue with normal facility operations under the guidance of their respective SWPPP's.

As noted previously, Cumberland's SWPPP's are somewhat dated; having been developed in 2003. Update of the Public Works Facility SWPPP was completed in September 2013 (Permit Year 1 of the 2013-2018 Permit Cycle).

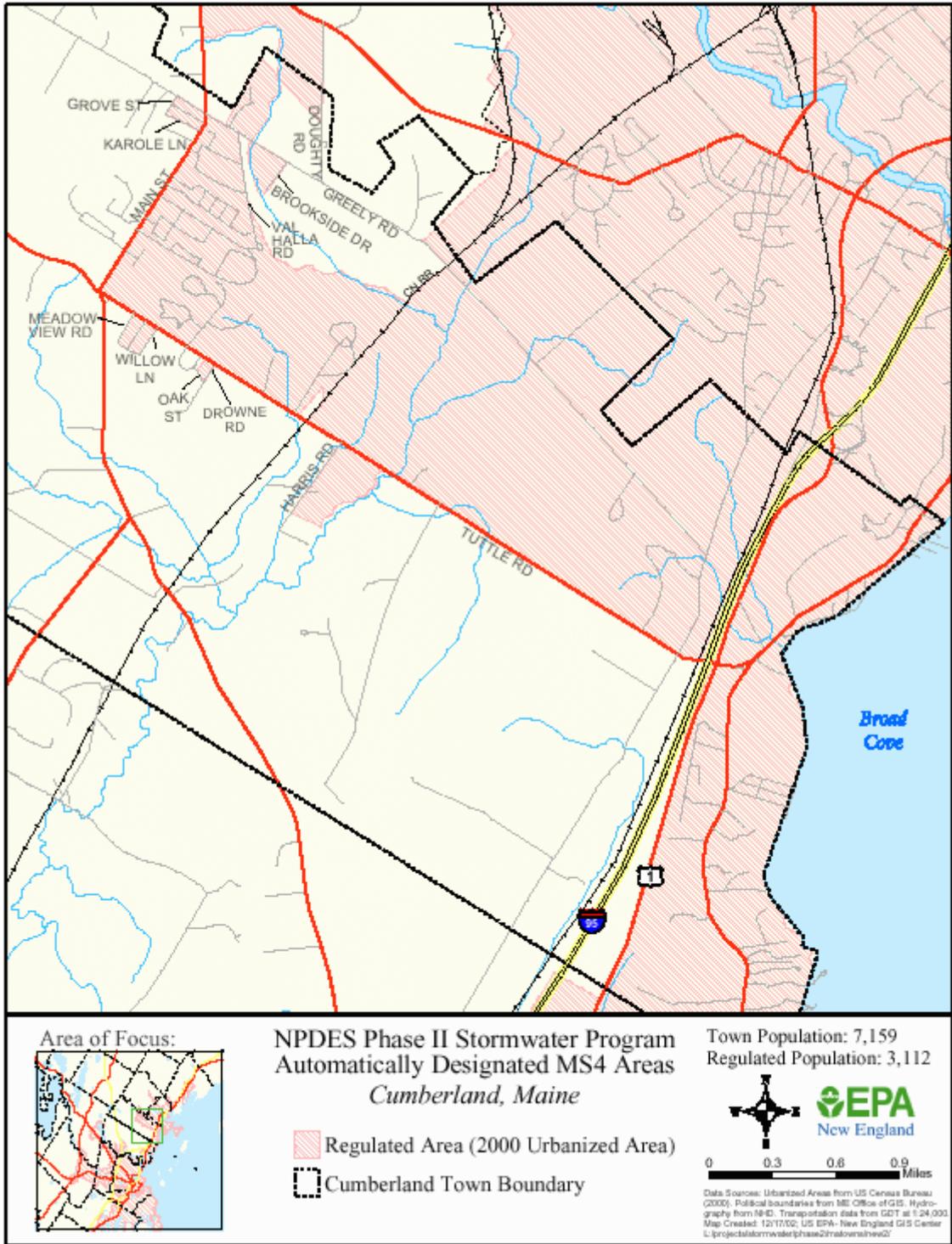


Figure 1: Cumberland, Maine Urbanized Area

Legend

 Watershed Boundary

Notes

1. Watershed delineations based on 5 foot contour interval mapping provided by the Town of Cumberland
2. Some features are approximate in location and scale
3. This plan has been prepared for the Town of Cumberland. All other uses are not authorized unless written permission is obtained from Oak Engineers

Scale and Orientation

0 250 500 Feet 

Prepared For

Town of Cumberland
290 Tuttle Road
Cumberland, Maine

Site Address

Watershed: PISC03
Hedgerow Drive to
Greely Road Area

083025 | Oct 2009

Figure 2





Legend

 Watershed Boundary

Notes

1. Watershed delineations based on 5 foot contour interval mapping provided by the Town of Cumberland
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Scale and Orientation



Prepared For

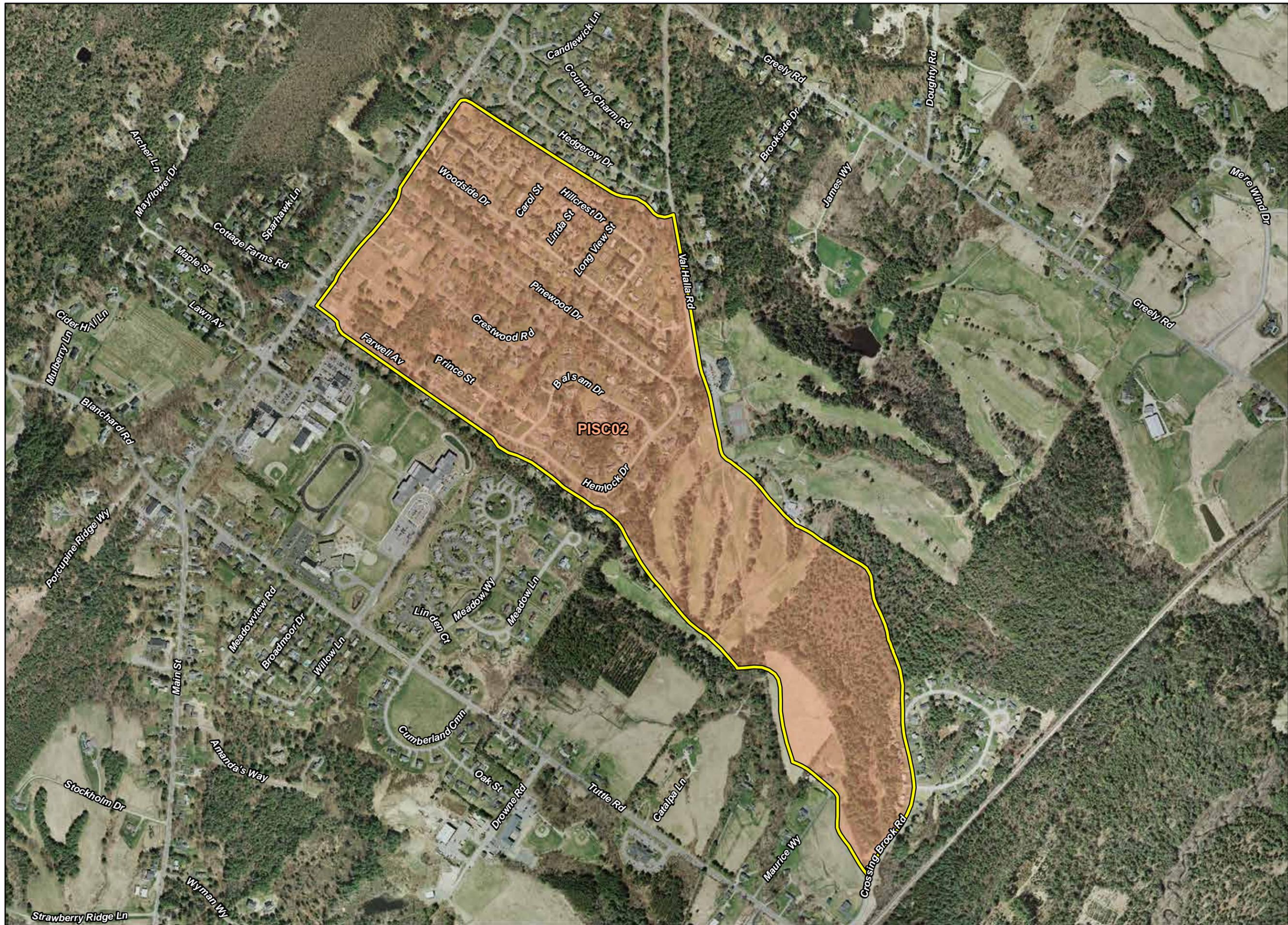
Town of Cumberland
290 Tuttle Road
Cumberland, Maine

Site Address

Watershed: PISC01
Greely High School
Area

083025 | Oct 2009

Figure 3



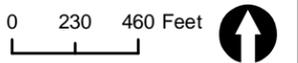
Legend

 Watershed Boundary

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Scale and Orientation



Prepared For

Town of Cumberland
290 Tuttle Road
Cumberland, Maine

Site Address

Watershed: PISC02
Farwell Avenue to Hill
Crest Drive Area

083025 | Oct 2011

Figure 4



Legend

 Watershed Boundary

Notes

1. Watershed delineations based on 5 foot contour interval mapping provided by the Town of Cumberland
2. Some features are approximate in location and scale
3. This plan has been prepared for the Town of Cumberland. All other uses are not authorized unless written permission is obtained from Oak Engineers

Scale and Orientation



Prepared For

Town of Cumberland
290 Tuttle Road
Cumberland, Maine

Site Address

Watershed: PISC04
Meadow Lane to
Catalpa Lane

083025 | Oct 2011

Figure 5



Legend

 Watershed Boundary

Notes

1. Watershed delineations based on 5 foot contour interval mapping provided by the Town of Cumberland
2. Some features are approximate in location and scale
3. This plan has been prepared for the Town of Cumberland. All other uses are not authorized unless written permission is obtained from Oak Engineers

Scale and Orientation



Prepared For

Town of Cumberland
290 Tuttle Road
Cumberland, Maine

Site Address

Watershed: PISC05
Catalpa Lane to
Maurice Way

083025 | Oct 2011

Figure 6

Appendix A

Public Education Report (ISWG)

APPENDIX A: Permit Year 5 Summary of Minimum Control Measure 1

Stormwater Awareness Plan Implementation

Outreach Tool	Status (x = complete)					PY5 Details	
	PY1 ¹	PY2	PY3	PY4	PY5		
PY5 requirement: to be in compliance, implement A5 and one additional activity (A2, A3, A4 or A6). If A3 has not been implemented in this permit cycle, it should be selected as the additional activity for communities where public receptacles are visible.							
A1 - Run the Ducky II ad for 3 weeks (required in PY 2&3)		x	x				
A2 - Distribute posters at municipal offices, libraries, local hotspots (required in PY 2-4)		x	x	x	x	A total of 275 stormwater-related posters were displayed in local establishments in the 14 ISWG communities.	
A3 - Affix stickers to waste receptacles (required in PY5)					x	Stickers featuring the Think Blue Maine logo, website, and the message “Don’t trash our water!” were developed and affixed to public trash cans in schools, municipal buildings, libraries, and parks/public areas in ISWG communities ² . Communities received stickers in the following quantities:	
						Biddeford	500
						Cape Elizabeth	500
						Cumberland	500
						Falmouth	500
						Freeport	500
						Gorham	500
						Old Orchard Beach	500
						Portland	500
						Saco	500
						Scarborough	700
						South Portland	500
						Westbrook	700
						Windham	500
Yarmouth	500						
A5 - Ducky ad + <i>After the Storm</i> , a video co-produced by EPA & the Weather Channel on local cable access stations (required in PY 4&5)			x	x	x	Each ISWG community’s public access television station was provided with a copy of the Ducky II ad and <i>After the Storm</i> . The following information was received from the stations regarding air play:	
						Biddeford	No data provided
						Cape Elizabeth	No data provided
						Cumberland	No data provided
						Falmouth	<i>After the Storm</i> was aired daily in May and June; the Ducky ad played frequently between programming.
Freeport	No data provided						

¹ PY1 was dedicated to developing the awareness plan. No public awareness outreach was required.

² 500 stickers were also provided to the Maine Turnpike Authority to be distributed at their administrative building in Portland, maintenance facilities, and toll booths.

						Gorham	<i>After the Storm</i> and the Ducky ad aired daily.
						Old Orchard Beach	No data provided
						Portland	No data provided
						Saco	No data provided
						Scarborough	No data provided
						South Portland	Between 7/1/12 and 6/30/13, South Portland Community Television aired over 281 hours of water-related programming (including <i>After the Storm</i> and the ducky ad).
						Westbrook	No data provided
						Windham	No data provided
						Yarmouth	No data provided

PY5 requirement - to be in compliance, implement B1 & B4 and one additional activity (B2, B3 or B5).							
B1 - Prominent links established on municipal and partner websites (required in PY 2-5)			x	x	x	x	
B2 - Article in local newspaper and/or town newsletter (required in PY 2-5)			x	x	x	x	<p>A press release about stormwater and the <i>Urban Runoff</i> 5k was submitted to the following publications: <i>Forecaster</i> (all editions; covers Cape Elizabeth, Cumberland, Falmouth, Freeport, Portland, Scarborough, South Portland & Yarmouth), <i>Portland Daily Sun</i> (Portland), <i>Independent</i> (Windham), <i>American Journal</i> (Gorham & Westbrook), <i>Courier</i> (Biddeford, Saco & OOB), <i>Portland Press Herald</i>; The <i>Portland Press Herald</i> featured the Urban Runoff in their "In the City" blog (April 19, 2013).</p> <p>WGME 13 featured the Urban Runoff in their news broadcast (April 20, 2013)</p>
B4 - Run online web ads for three months (required in PY 4&5)					x	x	<p>Online ads that directed viewers to www.thinkbluemaine.org ran on news and outdoor-focused websites and on the Time Warner Cable RoadRunner email log-in page in all ISWG communities for the months of March – May 2013.</p> <p>Using Time Warner Cable's online ad service, ISWG was able to specifically market to our target audience (homeowners, aged 35-55) primarily within the ISWG communities (residents of outlying communities potentially saw the ads as well).</p> <p>According to the summary report provided by Time Warner Cable, the ads were seen by our target audience more than 400,000 times and had a "click through rate" (the number of times the ads were clicked) of 0.07%. ISWG's click through rate was higher than the industry average of 0.04%.</p> <p>There was a 214% increase in hits on the Think Blue Maine website over this three-month period compared to the previous three three-month periods (June 2012 – August 2012, September 2012 –</p>

						November 2012, December 2012 – February 2013).
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PY5 requirement - to be in compliance, implement C1 and one additional activity (C2, C3, C4 or C5).						
C1 - Email newsletter/blurb to municipal employees (including school department), university employees, etc. (Required in PY 3-5)			x	x	x	An email promoting the <i>Urban Runoff and Green Neighbor Family Fest</i> was sent to all employees ³ in ISWG communities. The email included information about stormwater, as well as promoting the events.
C2 – Informational materials developed as part of awareness tool distributed in each ISWG community.				x	x	General stormwater information was distributed throughout priority neighborhoods in each ISWG community. The following number of households received information:
						Biddeford: 122
						Cape Elizabeth: 79
						Cumberland: 112
						Falmouth: 95
						Freeport: 64
						Gorham: 68
						Old Orchard Beach: 79
						Portland: 1797
						Saco: 111
						Scarborough: 110
						South Portland: 86
						Westbrook: 111
Windham: 96						
Yarmouth: 61						

PY5 Evaluation

The Interlocal Stormwater Working Group partnered with other MS4 clusters and the University of Maine (UMaine) to complete an evaluation survey of our target audience. The survey instrument was based on Maine DEP's intercept survey (developed by Market Decisions, 2007), the Bangor Area Stormwater Group's 2011 intercept survey instrument, and the Cumberland County Soil & Water Conservation District's (CCSWCD) 2012 Capisic Brook landowner survey (developed by UMaine and CCSWCD, 2012). A summary report is included in Appendix C.

³ The City of South Portland was unable to distribute the email to all municipal staff. A stormwater-related article was included in a municipal newsletter.

Best Management Practices Adoption Plan Implementation

Task	Status (x = complete)					PY5 Details
	PY1 ⁴	PY2	PY3	PY4	PY5	
Reporting						
Summarize plan implementation to date	x	x	x	x	x	
Point of Sale						
Expand number of stores participating in the Point of Sale program; goal is to have 21 participating stores.	x	x	x	x	x	In PY5 the number of stores participating in the program was maintained at 21. The distribution of the stores is as follows:
						Biddeford: 0
						Cape Elizabeth: 0
						Cumberland: 1
						Falmouth: 2
						Freeport: 1
						Gorham: 2
						Old Orchard Beach: 1
						Portland: 2
						Saco: 1
						Scarborough: 2
						South Portland: 3
Westbrook: 1						
Windham: 2						
Yarmouth: 3						
Adult Education						
Offer a minimum of six YardScaping classes per year	x	x	x	x	x	9/12/12: UMaine Cooperative Extension Master YardScaper class (Scarborough), 20 participants
						9/26/12: Scarborough Adult Ed, 17 participants
						3/6/13: Scarborough Adult Ed, 15 participants
						3/11/13: Youth YardScaper teacher workshop (Falmouth): 8 participants
						3/23/13: Biddeford Pool Improvement Association winter meeting, 25 participants
						4/2/13: Citizens of a Green Gorham sponsored training, class cancelled due to low registration
						4/13/13: Skillins Greenhouse spring class (Falmouth), 47 participants
						6/4/13: Falmouth Middle School Youth YardScaping public presentation, 39 participants
6/5/13: Falmouth Middle School Youth YardScaping public presentation, 42 participants						
Promote adult education classes	x	x	x	x	x	Press releases publicizing the available classes were submitted to local publications, additional information was published in local adult education brochures, via direct mail, using social networking websites, and through host locations.

⁴ Behavior change plan development occurred in PY1. The YardScaping program was still in the pilot stage during PY1, and not all tasks were required.

Track behavior change	x	x	x	x	x	CCSWCD staff documented class evaluations and contacted past adult education class participants to determine which YardScaping practices were adopted. Please see summary of behavior change reported by participants of PY4 classes, as well as those practices participants of PY5 classes intend to implement, below.
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Targeted Information Distribution

Distribute information to priority neighborhoods (minimum of 50-100 households in size) in each ISWG community.		x	x	x	x	YardScaping information was distributed throughout priority neighborhoods in each ISWG community. The following number of households received information:
						Biddeford: 122
						Cape Elizabeth: 79
						Cumberland: 112
						Falmouth: 95
						Freeport: 64
						Gorham: 68
						Old Orchard Beach: 79
						Portland: 1797
						Saco: 111
						Scarborough: 110
						South Portland: 86
						Westbrook: 111
Windham: 96						
Yarmouth: 61						
Distribute YardScaping information to local establishments (e.g. pet stores, veterinarian offices, pediatrician offices). (Required in PY 3-5)			x			Note: With approval from Maine DEP, this task was removed from ISWG's BMP Adoption Plan in PY4.

Websites & Free Media

Maintain CCSWCD YardScaping website	x	x	x	x	x	CCSWCD maintained the YardScaping website and tracked hits. Increased hits were seen after targeted neighborhood outreach efforts, public events, and adult education presentations.
Newspaper coverage of YardScaping activities and healthy lawn care	x	x	x	x	x	<i>Portland Press Herald</i> : Maine Gardener: Eradicating weeds takes patience, persistence and hard work (July 22, 2012)
						<i>Portland Press Herald</i> : Maine Gardener: A lawn, with his thoughts (September 9, 2012)
						<i>Portland Press Herald</i> : Maine Voices: Act now to get some protection from pesticide spraying (December 21, 2012)
						<i>Portland Press Herald</i> : Concern over pesticide use at schools rises (January 1, 2013)
						<i>Portland Press Herald</i> : Pesticide forum may have both sides buzzing (January 13, 2013)
<i>Portland Press Herald</i> : Maine Gardener: Biocontrols are hot (January 27, 2013)						

Neighborhood YardScape Socials

Hold a minimum of zero neighborhood socials in the ISWG communities	x	x	x	x	x	Zero neighborhood socials were held in the ISWG communities in PY5.
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Adult Education – Behavior Change Tracking

During the fall of 2012, CCSWCD staff made follow up phone calls with participants of YardScaping adult education classes held in the fall of 2011 and spring of 2012 (PY4 class participants) in order to determine the level of implementation of the YardScaping practices. As expected, it was difficult to reach people, but the information gleaned from those who were reached provided an anticipated rate of compliance.

Follow up phone calls from Permit Year 4 YardScaping Classes (behavior change tracking)			
Lawn Care Practice	Planned to implement	Implemented practice	% behavior change
Set Mower to a height of 3"	17	17	100.00%
Leave grass clippings	3	3	100.00%
Sharpen mower blades	12	9	75.00%
Aerate	21	7	33.33%
Topdress	20	9	45.00%
Overseed	19	15	78.95%
Use low maintenance seed	21	15	71.43%
Get a soil test	18	10	55.56%
Use nitrogen-only fertilizer	11	7	63.64%
Use compost tea	18	6	33.33%

Cumulative Behavior Change (PY1-4)⁵			
Lawn Care Practice	Planned to implement	Implemented practice	% behavior change
Set Mower to a height of 3"	84	84	100.00%
Leave grass clippings	51	49	96.08%
Sharpen mower blades	71	58	81.69%
Aerate	128	69	53.91%
Topdress	135	79	58.52%
Overseed	130	88	67.69%
Use low maintenance seed	145	108	74.48%
Get a soil test	128	87	67.97%
Use nitrogen-only fertilizer	115	79	68.70%
Use compost tea	112	41	36.61%

⁵ Behavior change resulting from PY5 classes will be documented in the fall of 2013.

Follow up phone calls are made six months to a year after the class to allow participants a growing season to implement the recommended practices. Below are the results of the Permit Year 5 post-class evaluations.

Permit Year 5 Post-Class Evaluations			
Lawn Care Practice	Plan to implement	Currently do not implement	% planning to implement
Set Mower to a height of 3"	17	17	100.00%
Leave grass clippings	9	10	90.00%
Sharpen mower blades	17	21	80.95%
Aerate	37	38	97.37%
Topdress	37	41	90.24%
Overseed	38	40	95.00%
Use low maintenance seed	39	40	97.50%
Get a soil test	38	44	86.36%
Use nitrogen-only fertilizer	34	40	85.00%
Use compost tea	26	38	68.42%

CCSWCD staff will contact the class participants from the Permit Year 5 classes in the fall of 2013 to determine which behaviors have been adopted.

ISWG Classroom Education Activities

The following is a summary of education activities completed in each ISWG community during the 2012-2013 school year. Activities were provided by the following:

CCSWCD: Deb Debiegun, District Educator, Cumberland County Soil & Water Conservation District, ddebiegun@cumberlandswcd.org, 207-892-4700 x 101

PWD: Sarah Plummer, Environmental Education Coordinator, Portland Water District, splummer@pwd.org, 207-774-5961 x3324

Totals

PY5 total students: 3,358

PY5 total contact hours: 2,040

Cumulative (PY 1-5) total students: 14,033

Cumulative (PY 1-5) total contact hours: 57,354.25

Biddeford

PY5 total students: 165

PY5 total contact hours: 124

Lesson topics: Watersheds, water movement, and transport of nonpoint source pollutants.

Schools: Biddeford Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 363

Cumulative (PY 1-5) total contact hours: 299

Cape Elizabeth

PY5 total students: 178

Total contact hours: 950

Lesson topics: Soil as water pollution; erosion; watersheds. Nonpoint source pollution, erosion, water flow, and best management practices; buffers and their ability to mitigate pollution; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices.

Schools: Cape Elizabeth High School, Pond Cove Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 845

Cumulative (PY 1-5) total contact hours: 4,370

Cumberland

PY5 total students: 237

PY5 total contact hours: 1,263

Lesson topics: Watersheds, nonpoint source pollution, and water quality parameters; in-class water quality testing; major global ocean currents and local Gulf of Maine circulation, how trash and pollution is transported; how our actions affect water quality in freshwater and marine resources; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices.

Schools: Greely High School, Greely Middle School
Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 920
Cumulative (PY 1-5) total contact hours: 6335.5

Falmouth

PY5 total students: 123
PY5 total contact hours: 2040

Lesson topics: Watersheds and water flow, local water bodies, and watersheds; stormwater pollution and cumulative impact; nonpoint source pollution and behavior change; experiments and independent research projects where students formed a yard care company based on the YardScaping program (healthy lawn care without the use of chemicals) and presented their research to the public.

Schools: Falmouth Middle School, REAL school
Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 600
Cumulative (PY 1-5) total contact hours: 6599

Freeport

PY5 total students: 44
PY5 total contact hours: 176

Lesson topics: Watersheds, watershed models, water in the world; defining water pollution, soil as pollutant in water; stormwater pollution and cumulative impact; direct and indirect uses of water; nonpoint source pollution, impervious/pervious surfaces, runoff, and best management practices.

Schools: Mast Landing School
Educator: CCSWCD

Cumulative (PY 1-5) total students: 220
Cumulative (PY 1-5) total contact hours: 619

Gorham

PY5 total students: 267
PY5 total contact hours: 817

Lesson topics: Storm drains, runoff, non-point source pollution, water movement; watersheds, non-point source pollution, and water quality parameters; nonpoint source pollution, impervious/pervious surfaces, runoff, and best management practices; in-class water quality testing, water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; vernal pools and local frogs.

Schools: Gorham Middle School, Sunny Days Summer Camp, Great Falls Elementary School
Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 993
Cumulative (PY 1-5) total contact hours: 3,866

Old Orchard

PY5 total students: 57
PY5 total contact hours: 171

Lesson topics: Amount of water in the world, conservation, and the water cycle; watersheds and water movement; nonpoint source pollution, stormwater, storm drains, cumulative impact, and wastewater.

Schools: Loranger Middle School
Educator: CCSWCD

Cumulative (PY 1-5) total students: 251
Cumulative (PY 1-5) total contact hours: 1,103

Portland

PY5 total students: 192
PY5 total contact hours: 356

Lesson topics: Watersheds, water cycle, water movement; nonpoint source pollution, stormwater, storm drains, cumulative impact; water locations; drinking water treatment and distribution; “Make a Splash” Festival featuring various Project WET water activities.

Schools/Groups: Lincoln Middle School, Riverton Elementary School, State Street Preschool
Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 2,519
Cumulative (PY 1-5) total contact hours: 5,865

Saco

PY5 total students: 75
PY5 total contact hours: 290

Lesson topics: Water cycle, where water is found, watersheds, point and nonpoint source pollution, soil as pollutant in water; bioassessment process to determine water quality (classroom activity).

Schools/Groups: Saco Middle School
Educator: CCSWCD

Cumulative (PY 1-5) total students: 339
Cumulative (PY 1-5) total contact hours: 1,045

Scarborough

PY5 total students: 187
PY5 total contact hours: 463

Lesson topics: Amount of water in the world; nonpoint source pollution, stormwater, storm drains, cumulative impact; water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; groundwater.

Schools/Groups: Girl Scouts (Brownies), Wentworth Intermediate School, Scarborough High School, Scarborough Middle School
Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 1,100
Cumulative (PY 1-5) total contact hours: 2,547

South Portland

PY5 total students: 313
PY5 total contact hours: 1,945

Lesson topics: Group investigation of water topics and sampling inflow to pond; macroinvertebrate sampling and fish traps at Clark’s pond outlet; Watersheds, water cycle, water movement; bioassessment process to determine water quality (classroom activity); nonpoint source pollution, soil as pollutant, impervious/pervious surfaces, runoff, and best management practices; water cycle; amount of water in the world and conservation; watersheds, water movement, and

transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; macroinvertebrate sampling and water quality testing.

Schools: Small Elementary School, Memorial Middle School, Mahoney Middle School, Skillin Elementary School, Dyer Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 2,609

Cumulative (PY 1-5) total contact hours: 12,237

Westbrook

PY5 total students: 94

PY5 total contact hours: 102

Lesson topics: Discussion of hydropower pros and cons, history of Presumpscot River and dams, role play discussion on pros and cons of dam removal.

Schools: Westbrook Middle School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 465

Cumulative (PY 1-5) total contact hours: 1,705

Windham

PY5 total students: 263

PY5 total contact hours: 1,340

Lesson topics: Macroinvertebrate sampling; "Water Maine" collaboration with PWD; amount of water in the world, water cycle; watersheds, water movement, watershed models; bioassessment process (classroom activity); stormwater, nonpoint source pollution, storm drains, cumulative impact; mixtures and turbidity water cycle; amount of water in the world and conservation; watersheds, water movement, and transport of pollution; stormwater, nonpoint source pollution, and cumulative impact; invasive species; trout anatomy, adaptations, and reliance on clean water; lake stratification; pervious/impervious surfaces, buffers, and best management practices; macroinvertebrate sampling; relating macroinvertebrates to flyfishing and river ecology and food systems; "Water Maine" book project (book written by high school students for middle school audience about various water topics).

Schools: Windham High School, Windham Middle School, Manchester Elementary School

Educator: CCSWCD, PWD

Cumulative (PY 1-5) total students: 1,494

Cumulative (PY 1-5) total contact hours: 10,395

Yarmouth

PY5 total students: 107

PY5 total contact hours: 129

Lesson topics: Water pollution, nonpoint source pollution, soil as pollutant, impervious/pervious surfaces, runoff, and best management practices; stormwater, storm drains, cumulative impact.

Schools: Yarmouth Elementary School

Educator: CCSWCD

Cumulative (PY 1-5) total students: 270

Cumulative (PY 1-5) total contact hours: 368.75

Appendix B

Public Awareness Intercept Survey (ISWG)

APPENDIX B:

Non-Point Source Pollution Communication Survey Final Report: Interlocal Stormwater Working Group

July 15, 2013



Prepared by:

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Research supported by the Interlocal Stormwater Working Group and the National Science Foundation award EPS-0904155 and Maine EPSCoR at the University of Maine

Executive Summary

The survey was developed to assess residents' awareness of recent efforts to clean up local streams, lakes and rivers; residents' perceptions of stormwater; and residents' lawn care practices. The Interlocal Stormwater Working Group (ISWG) has undertaken numerous initiatives in area municipalities to educate citizens about stormwater and encourage behavior that protects river, stream, lake, and pond water quality. Initiatives include such things, in-classroom lessons in area K-12 schools, community presentations on stormwater and healthy lawn care practices, healthy lawn care information in local hardware stores and lawn and garden centers, local newsletter announcements, door hangers in targeted neighborhoods, storm drain stenciling, mailings to residents in regulated communities, a 5k race and Earth Day festival, and the Ducky I and II ads. In prior years, ISWG used data from the Maine Department of Environmental Protection (ME DEP) phone survey to assess their residents. In 2013, they elected to conduct the Nonpoint Source Pollution and Communication Survey via intercept and online surveys. The 2013 survey is similar to the survey developed in 2008 by Market Decisions for the Bangor Area Stormwater Group. Questions were revised given prior experience with the survey and to meet local circumstances.

Key Findings:

1. The majority of respondents are full-time residents of the area and only 6% are part-time residents.
2. Over half of the respondents reported that the waterways in the greater Portland area are *very important*.
3. Almost 80% of respondents indicated they are *very to somewhat concerned* with the waterways in the greater Portland area.
4. 44% of respondents reported that stormwater runoff has a *major impact* on the quality of waterways in the greater Portland area.
5. Approximately 73% of respondents indicated that they are *very or somewhat interested* in personally taking action to reduce pollution from stormwater runoff or stormwater pollution.
6. Forty-four percent of respondents heard, saw, or read an advertisement regarding water pollution in the past year, while almost half said they had not seen such an advertisement.
7. The majority, 55%, of respondents recalled seeing an advertisement about stormwater pollution over the past year that featured rubber ducks accumulating and flowing downstream into rivers and the ocean.
8. The majority of respondents (55%) did not recall hearing about efforts by local organizations to reduce pollution from stormwater run-off.

9. Over 50% of respondents who had heard of efforts by local organizations to reduce stormwater pollution reported taking specific actions as a result of the local efforts.
10. Less than one third of respondents reported hearing about local efforts to get people to reduce the use of lawn chemicals.
11. Of the respondents who heard of local efforts to reduce the use of lawn chemicals, 67% indicated they have taken specific actions as a result of the local effort.
12. Interestingly, almost two thirds of respondents reported that they do not use lawn chemicals at their Portland area residences.
13. Over half of the respondents who reported using lawn chemicals at their Portland area residences also reported that they apply such materials between two and four times per year.
14. When asked if residents apply salt-based products at residences to deal with snow and ice, there was almost a 50/50 split between responses of *yes* and *no*. Intercept survey responses to this question were often accompanied by qualifiers of “when necessary,” or “sparingly.” Reports of sand often accompanied, or was the preference compared to, salt-based product application.
15. Of those respondents who use fertilizers at their residences, 20% reported that they are *moderately* to *very likely* to reduce their use of lawn chemicals.
16. 48% of respondents indicated they are *moderately* to *very likely* to take action to seed, plant or mulch bare areas in their yard.
17. 33% of respondents indicated they are *moderately* to *very likely* to plant trees, shrubs, and ground cover to reduce the size of their lawns.
18. The majority (71%) of respondents either reported that the question about picking of their pet’s waste when in public places *does not apply* or that they are already taking the action. An additional 27% reported they are *very likely* to take this action.
19. 43% of respondents reported that they are *moderately* to *very likely* to take action to mow their lawn no shorter than 2.5-3 inches.
20. Although 31% of respondents indicated they are *moderately* to *very likely* to use phosphorous free fertilizer on their lawns, almost 20% were not sure if they would take that action.
21. When asked about properly disposing of cigarette butts, 87% reported that this question *does not apply* and another 5% reported they are already taking such action.

22. When asked about their perceptions of their neighbor's lawn chemical use, over half of the respondents indicated they *somewhat* to *strongly agree* that their neighbors use lawn chemicals. If social norms influence lawn care behavior in these communities, this finding indicates that debunking this norm perception may be important for changing behavior.
23. Over 80% of respondents indicated that they would use the Internet to look for information on taking any of the actions in Q14a-14g, followed by friends and family, lawn care professionals, and product labels.
24. Just over two-thirds of respondents reported that they *somewhat* to *strongly agree* that the actions they take at their residence to maintain their lawns impacts the quality of waterways in greater Portland.
25. There was good diversity in terms of respondent demographics. Overall, respondents are slightly older, have lived at their residences less than 10 years, are male, and are college-educated. Zip codes of respondents are reported in Appendix A.

Acknowledgments

Thank you to the Interlocal Stormwater Working Group and Jami Fitch, Cumberland County Soil and Water Conservation District, for their funding support and survey review and consultation. Thank you also to Lauren Thornbrough for her survey leadership and assistance, Drs. Laura Lindenfeld and Linda Silka for their project support, and Kathy Hoppe, Maine Department of Environmental Protection, for reviewing and providing feedback on the survey.

Survey Implementation

On Saturday, April 20st and Saturday, May 18th intercepts were conducted using an instrument developed by Market Decisions in 2008, edited by the Bangor Area Stormwater Group Education and Outreach Committee in 2011, and revised again in 2013 by consultants Karen Hutchins and Brenda Zollitsch, representatives from Cumberland County Soil and Water Conservation District, Penobscot County Soil and Water Conservation District, the Cities of Lewiston and Auburn, and Town of Sabattus. We also implemented an online survey from early June to mid-July.

Intercept Survey: We conducted the intercept survey at the Urban Runoff 5K in April, downtown Freeport in April, and at the Maine Mall in May. We collected 112 useable surveys (48 at the Urban Runoff 5K, 31 in downtown Freeport, and 33 at the Maine Mall in Portland). Unfortunately, we were not allowed access to many high traffic public places, such as grocery stores, in the ISWG municipalities, limiting our intercept survey potential.

All interviewers were trained prior to conducting the interviews. Respondents were greeted and asked to complete a short survey. They were told that the interviewer worked at the University of Maine and was collaborating with local municipalities for this survey. Refusals were estimated to be between 10% and 15%, depending on location. Based on data from other organizations, this is a low refusal rate; generally about half of those asked to participate refuse to take the survey, according to the 2008 intercept survey research report by Market Decisions. We found the Maine Mall a challenging atmosphere for intercept surveys because a large number of people avoided the interviewers, likely because they thought they were selling a product. The Urban Runoff 5K and downtown Freeport worked well for talking with people watching the race or waiting for family members. The two challenges with these locations are that you 1) often encounter large groups with multiple people contributing responses and 2) experience survey disruptions because of kids or family members. See Appendix B for a copy of the intercept survey.

Online Survey: To address the challenge of finding intercept survey locations accessible to the general population of ISWG communities, we also conducted an online survey. Working with a representative from Infogroup.com, we bought an address list of a random sample of 1500 home owners in the ISWG municipalities. We then mailed invitation letters to all 1500 residents with a request for respondents to visit the online survey web address to complete the survey. Letters indicated this was a collaborative study between University of Maine personnel and municipalities in the greater Bangor, Portland, and Lewiston-Auburn areas. Invitations were mailed on University of Maine letterhead. The study was approved by the University of Maine Institutional Review Board. A follow-up invitation letter was mailed just over one week after the initial letter. We gathered 86 useable online surveys. One survey was returned via mail. Of the 1500 survey invitation letters mailed, 86 respondents filled out the survey, achieving a 6% response rate. While one expects online surveys to have a lower response rate than mailed paper surveys, this response rate was much lower than anticipated based on 20%-40% response rates typically achieved with University of Maine mailed paper surveys. In total, we received 199 useable surveys. See Appendix B for a copy of the online survey.

According to the 2010 US Census, the population of individuals living in owner-occupied housing in the 14 ISWG communities is 123,285. When generating the sample, we want to be able to say that the sample represents the population as a whole. In this case, we want to say that our sample of home owners represents the general population of home owners. Based on the number of surveys completed, we set a precision level at 7, or accept a sampling error of 7%. Generally, people set the confidence interval at 5%, but our lower response rate does not permit a 5% confidence interval. This means that if 55% of the sample reports using fertilizer, in the population we can expect that between 48% and 62% of the population uses fertilizer. The larger the confidence interval the harder it is to report meaningfully about the population, but a 7% confidence interval still provides actionable data.

We also need to establish a confidence level, which is the confidence that the sample is within the average of the population. As is typical in survey research, we set a confidence level of 95, indicating that if we sampled all home owners 100 times, 95 of these samples would contain the true population and 5 samples would not represent the population.

Methodology

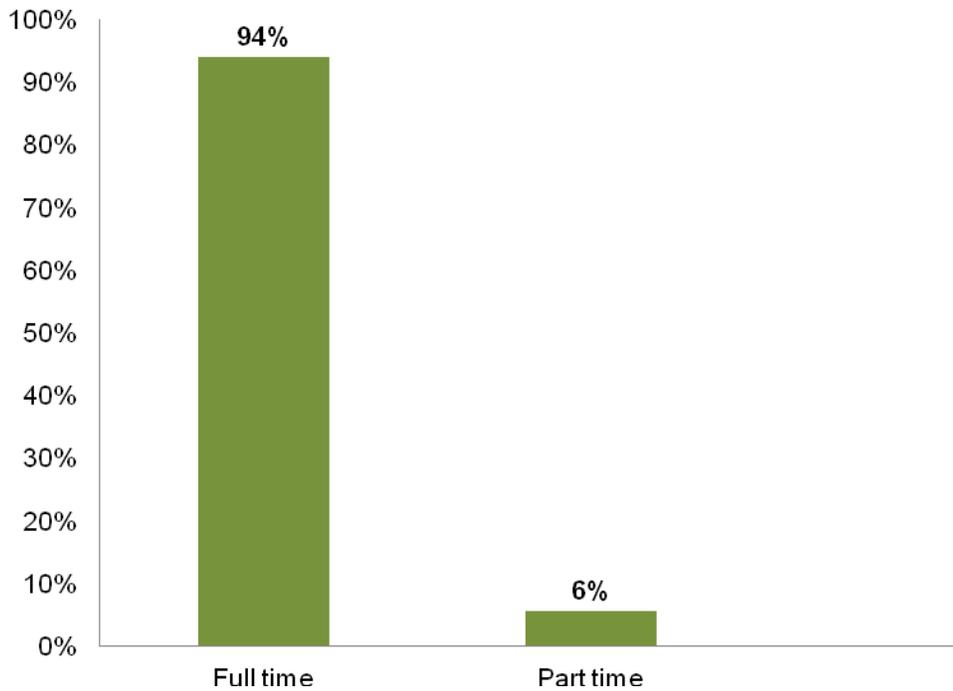
Intercept and online survey data were merged, cleaned, and verified for consistency. We checked over 15% of the paper surveys for accuracy, and, using the filter function in Excel, ensured that online responses were appropriately coded to match the coding of the intercept surveys. Results were calculated using Statistical Packaged for the Social Sciences (SPSS) software, and charts were generated using Excel. Since this survey was not conducted previously in ISWG communities, comparison with previous findings is not currently possible.

To determine if the Urban Runoff 5K participants' responses were significantly different than participant responses online, in Freeport, and at the Maine Mall, we ran independent samples t-tests statistics, which identify significant differences in the mean responses per question. Results of the t-tests are explained in the section, "t-Test Results."

Descriptive Results

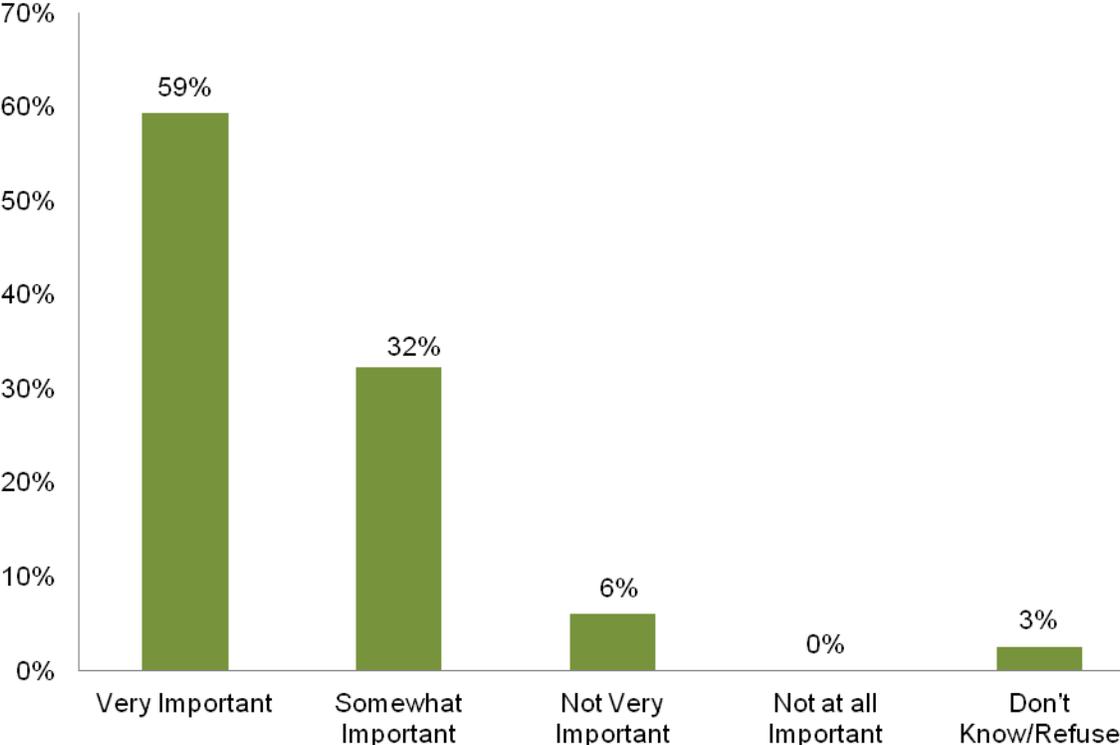
The majority of respondents are full-time residents of the area and only 6% were part-time residents.

2. Are you a part-time or full-time resident of this area?



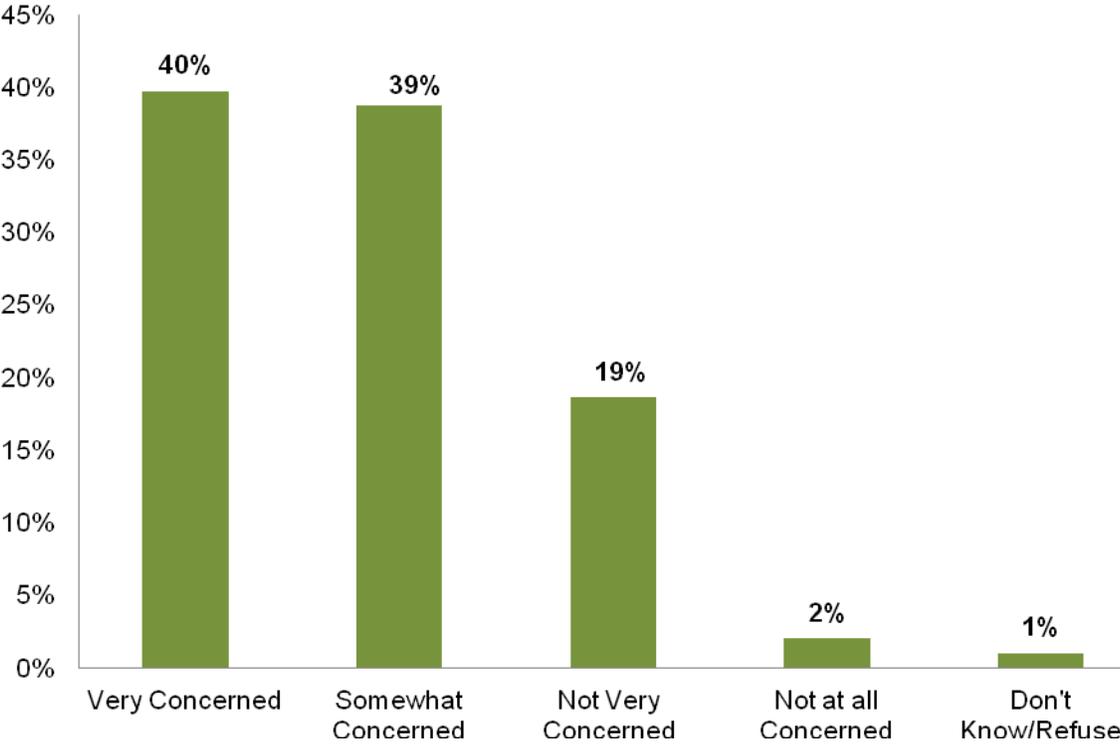
Over half of the respondents reported that the waterways in the greater Portland area are *very important*.

3. How important is the the quality of the waterways in the greater Portland area to you?



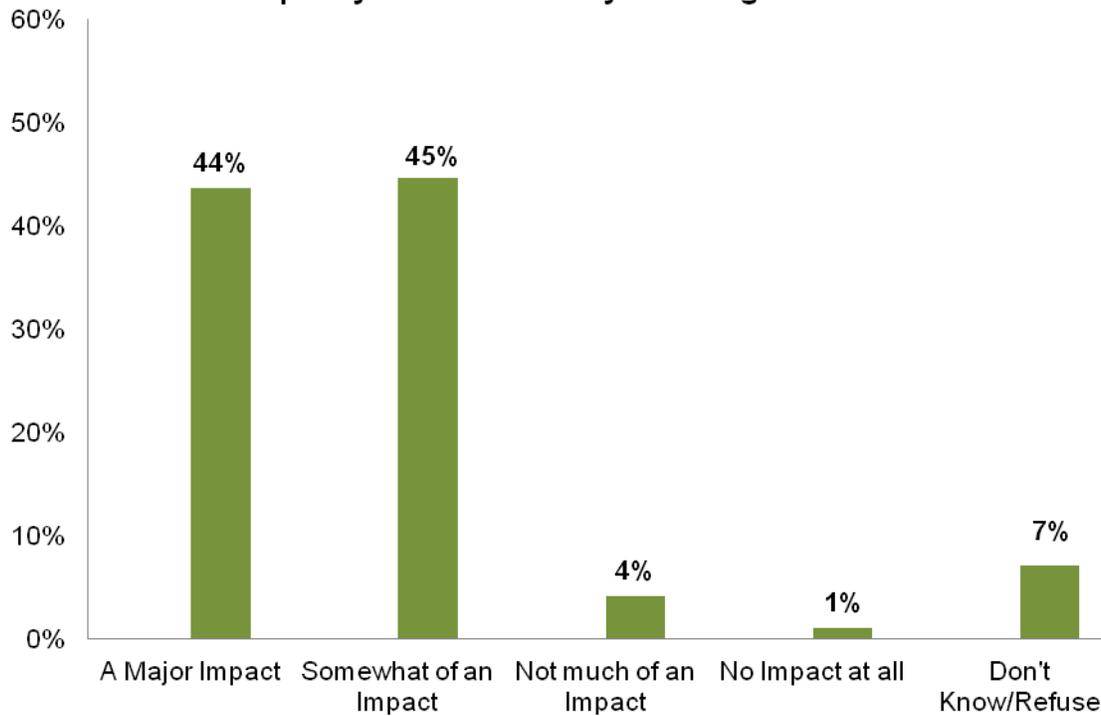
Almost 80% of respondents indicated they are *very to somewhat concerned* with the waterways in the greater Portland area.

4. How concerned are you with the waterways in the greater Portland area?



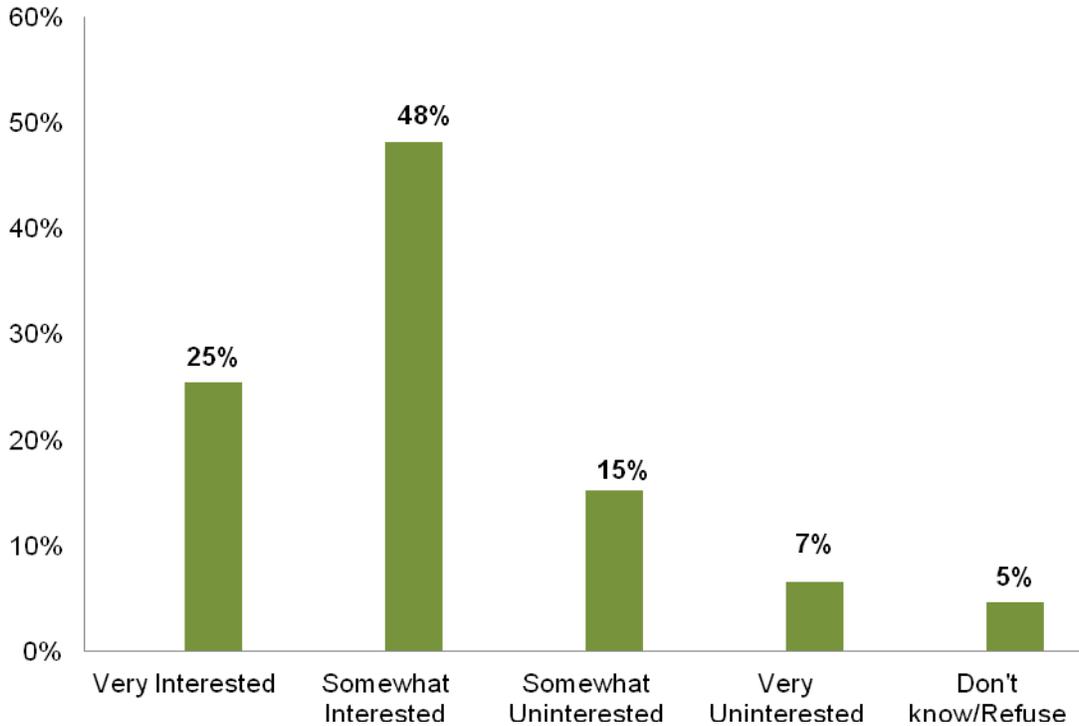
44% of respondents reported that stormwater runoff has a major impact on the quality of waterways in the greater Portland area.

6. How much of an impact would you say stormwater runoff has on the quality of the waterways in the greater Portland area?



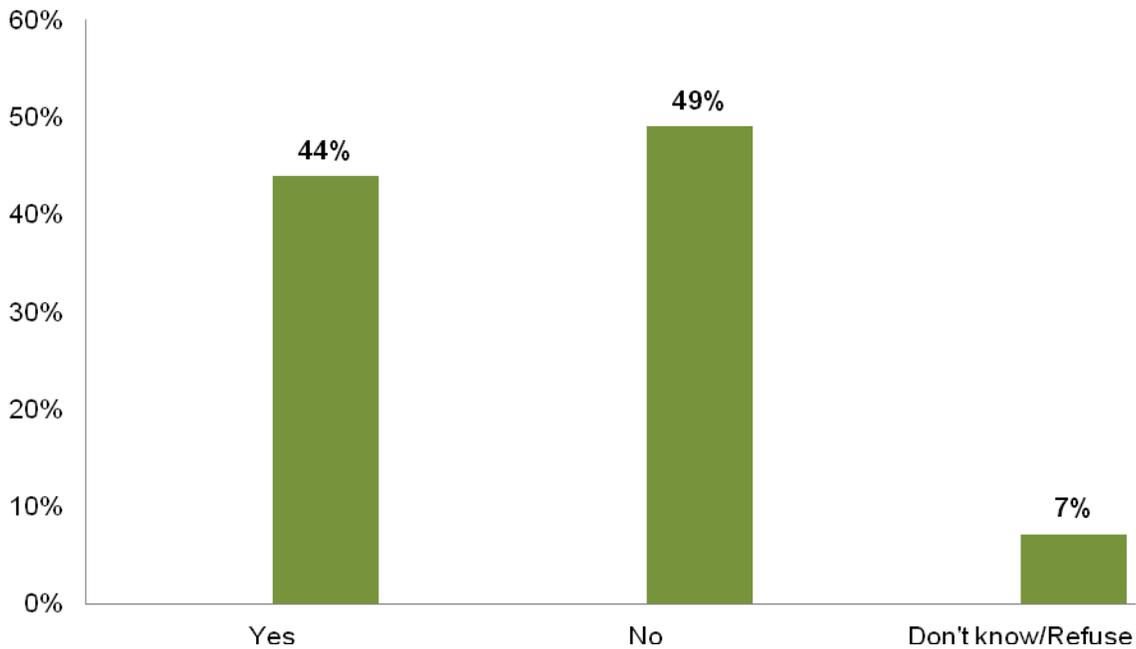
Approximately 73% of respondents indicated that they are *very* or *somewhat interested* in personally taking action to reduce pollution from stormwater runoff or stormwater pollution.

7. How interested are you in personally taking action to reduce pollution from the stormwater runoff or stormwater pollution?



Forty-four percent of respondents recalled hearing, seeing, or reading an advertisement regarding water pollution in the past year.

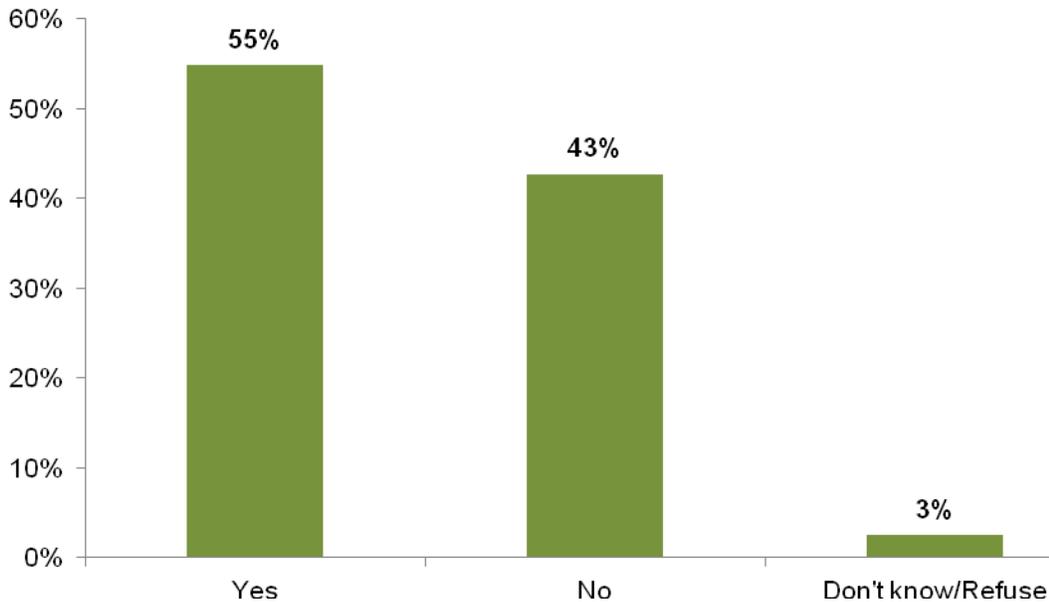
8. Have you seen, heard, or read any advertisements regarding water pollution over the past year?



See Appendix A for short answer response to question 8a, which asks respondents who answer 'yes' to question 8, "Will you tell us a little bit about what you have seen or heard?"

The majority, 55%, of respondents recalled seeing an advertisement about stormwater pollution over the past year that featured rubber ducks accumulating and flowing downstream into rivers and the ocean.

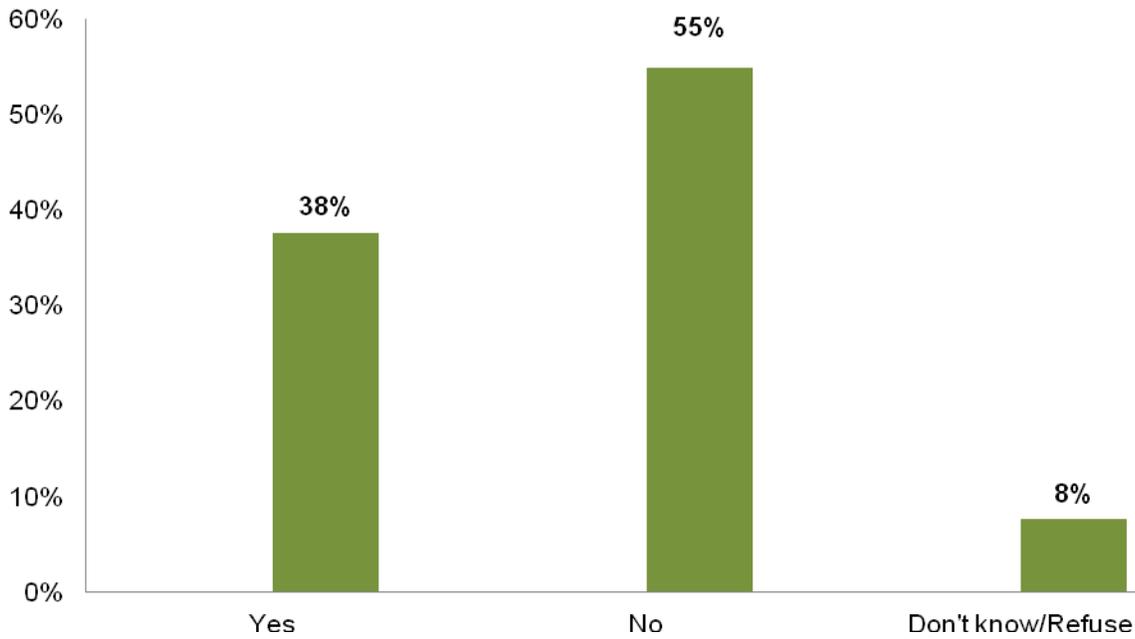
9. Over the past year, do you recall seeing an advertisement about stormwater pollution that featured rubber ducks accumulating and flowing into rivers and the ocean?



See Appendix A for short answer response to question 9a, which asks respondents who answer 'yes' to question 9, "Will you tell us about the advertisement, such as what you felt it was saying?"

The majority of respondents (55%) did not recall hearing about efforts by local organizations to reduce pollution from stormwater runoff.

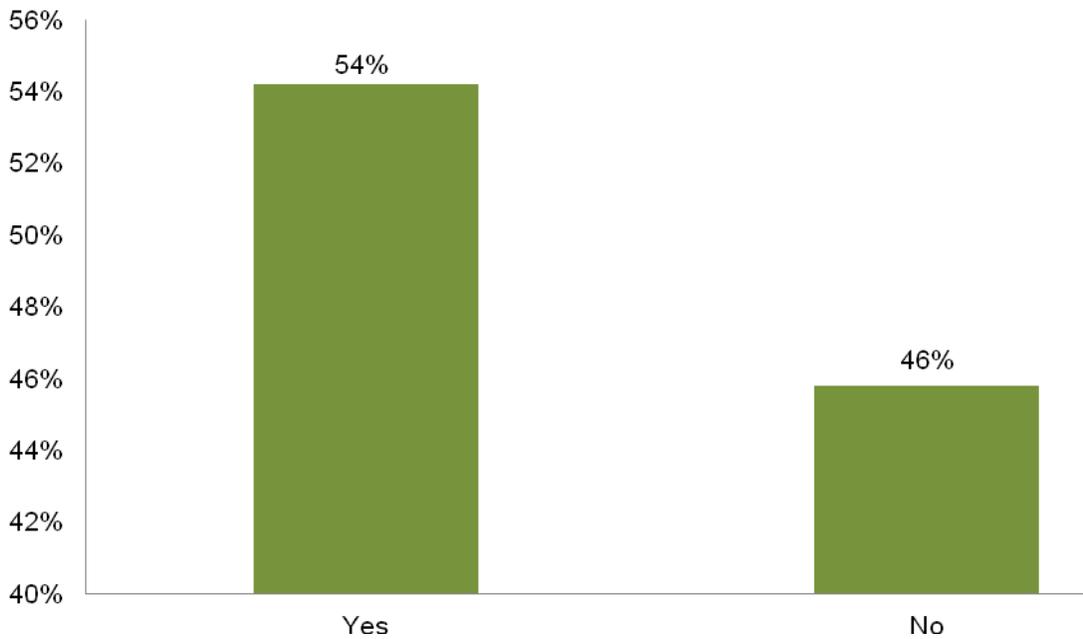
10. Over the past year, have you heard of any efforts by local organizations to reduce pollution from stormwater run-off?



See Appendix A for short answer response to question 10a, which asks respondents who answer 'yes' to question 10, "Will you tell us a little bit about what you have heard?"

Of the respondents who had heard of efforts by local organizations to reduce stormwater pollution, over 50% reported taking specific actions as a result of the local efforts.

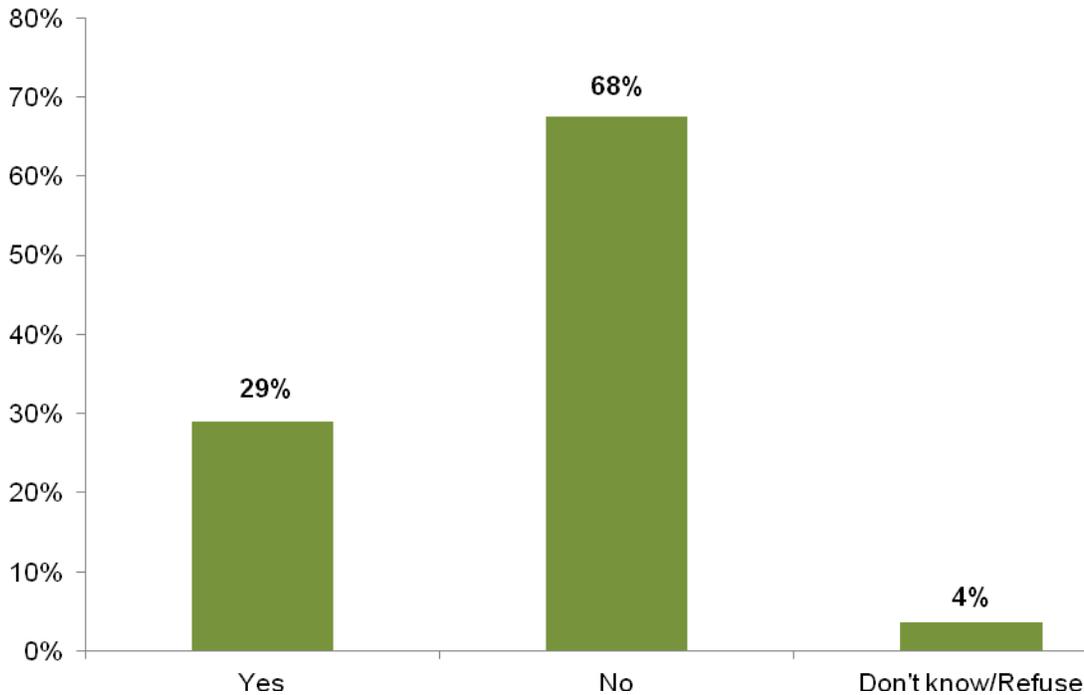
10b. Have you taken any specific actions as a result of the local efforts to reduce stormwater pollution?



See Appendix A for short answer response to question 10c, which asks respondents who answer 'yes' to question 10b to briefly describe the actions they have taken.

Less than one third of respondents reported hearing about local efforts to get people to reduce the use of lawn chemicals. In future surveys, asking about the tag line, “Being Green for Cleaner Streams” may improve respondent recall of local efforts.

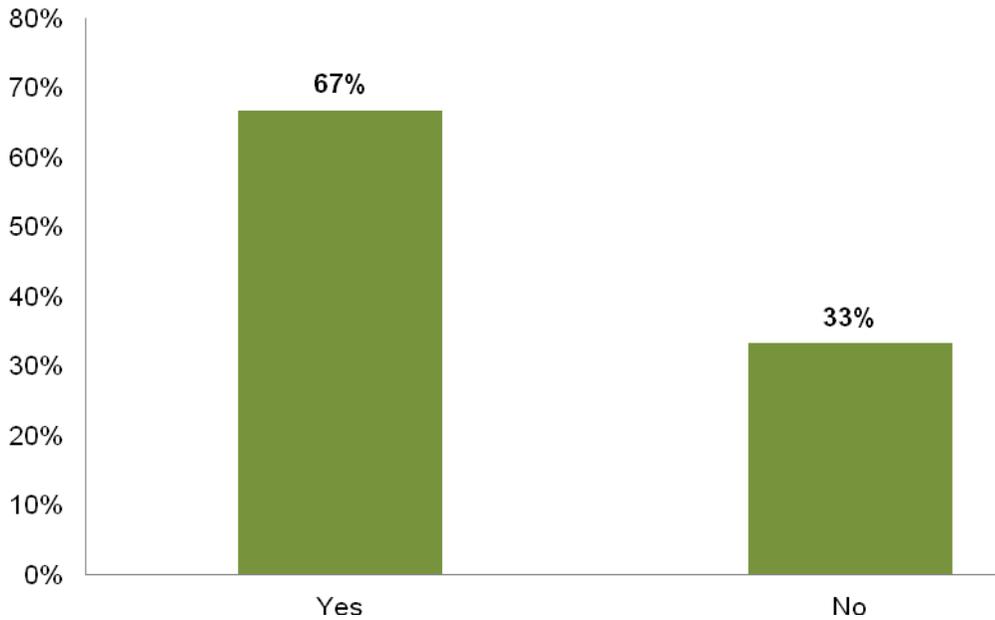
11. Over the past year, have you heard of local efforts to reduce the use of lawn chemicals?



See Appendix A for short answer response to question 11a, which asks respondents who answer 'yes' to question 11, “Will you tell us a little bit about what you have seen or heard?”

Of the respondents who recall hearing about local efforts to reduce the use of lawn chemicals, 67% indicated they have taken specific actions as a result of the local effort.

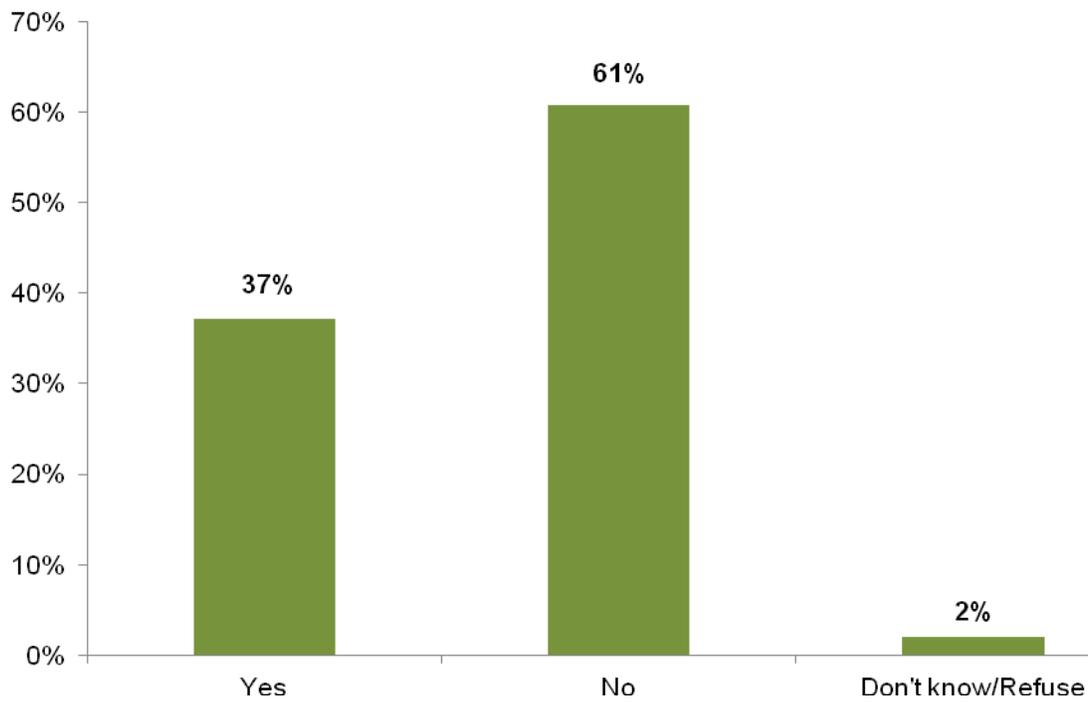
11b. Have you taken any specific actions as a result of this local effort to reduce the use of lawn chemicals?



See Appendix A for short answer response to question 11c, which asks respondents who answer 'yes' to question 11b to describe some of the actions taken.

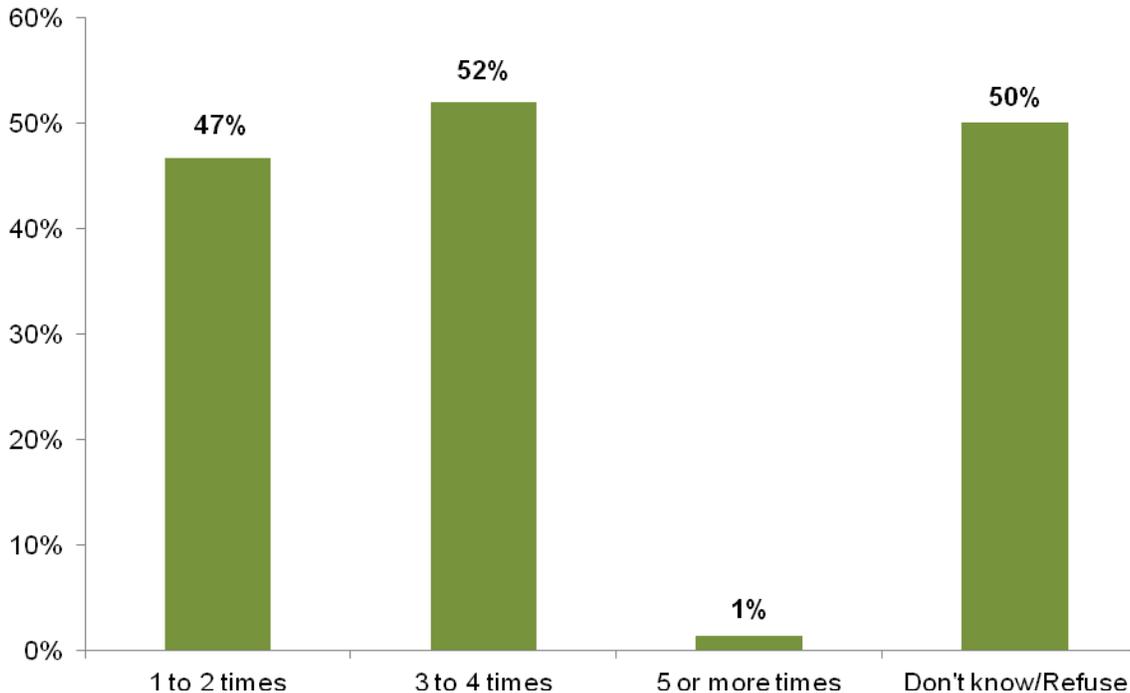
Interestingly, almost two thirds of respondents reported that they do not use lawn chemicals at their Portland residences.

12. At your residence, do you use lawn chemicals, such as fertilizers and weed and bug killers?



Over half of the respondents who reported using lawn chemicals at their Portland residences also reported that they apply such materials between two and four times per year*.

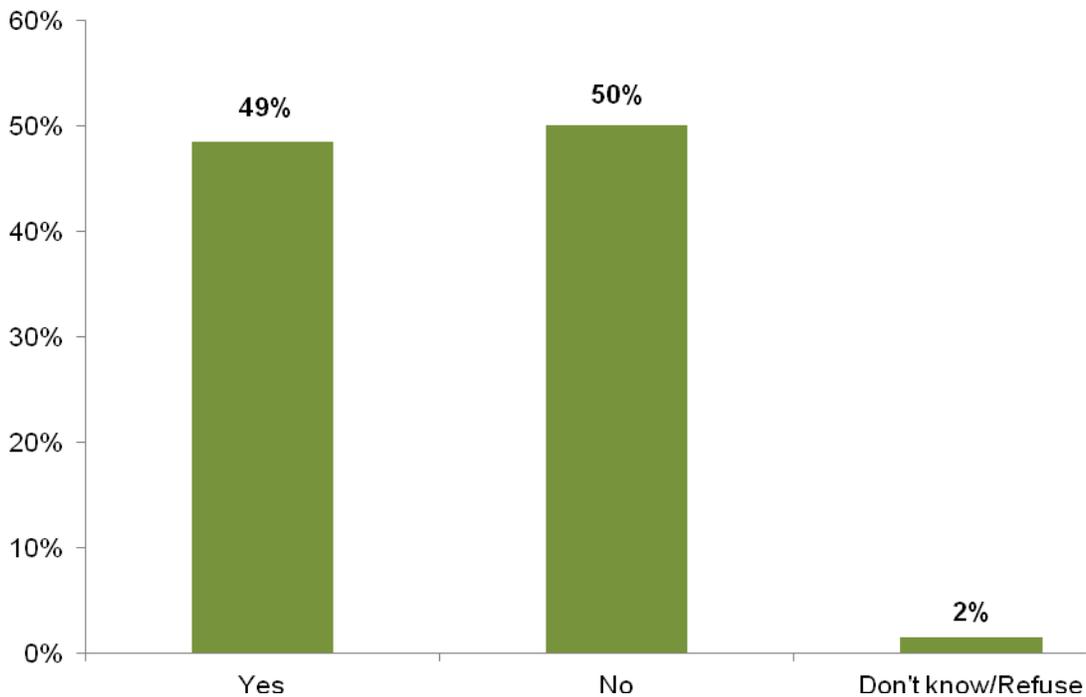
12a. Approximately how many times a year do you apply lawn chemicals?



*There was an error with this question when asking it during the intercept survey. Respondents were asked to choose between “1 and 2 times per year,” “2 and 3 times per year,” “3 and 4 times per year,” and “more than 4 times per year.” The online survey respondents were given the categories displayed in the bar chart. Using our best estimate, we combined responses of “2 and 3 times per year” with “3 and 4 times per year”; the combined data is displayed in the bar chart.

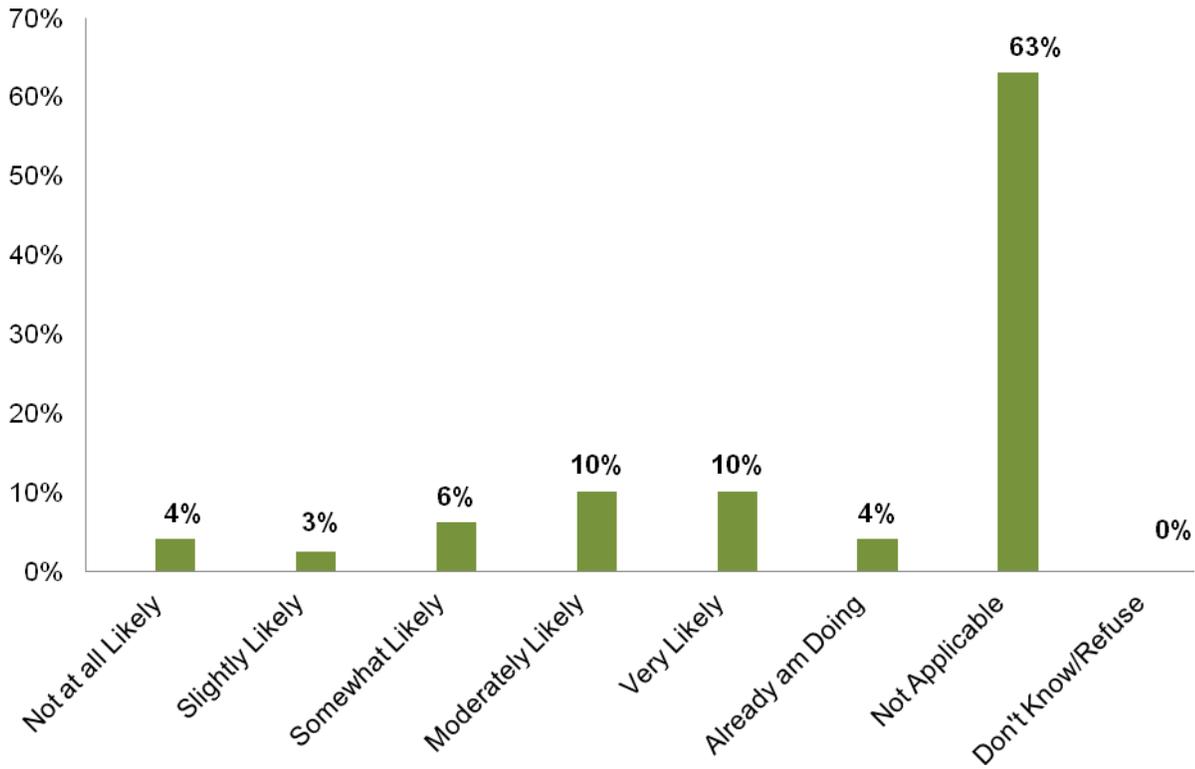
When asked if residents apply salt-based products at residences to deal with snow and ice, there was almost a 50/50 split between responses of *yes* and *no*. Intercept survey responses to this question were often accompanied by qualifiers of “when necessary,” or “sparingly.”

13. At your residence, do you apply salt-based products on your walkways and driveways to deal with snow and ice?



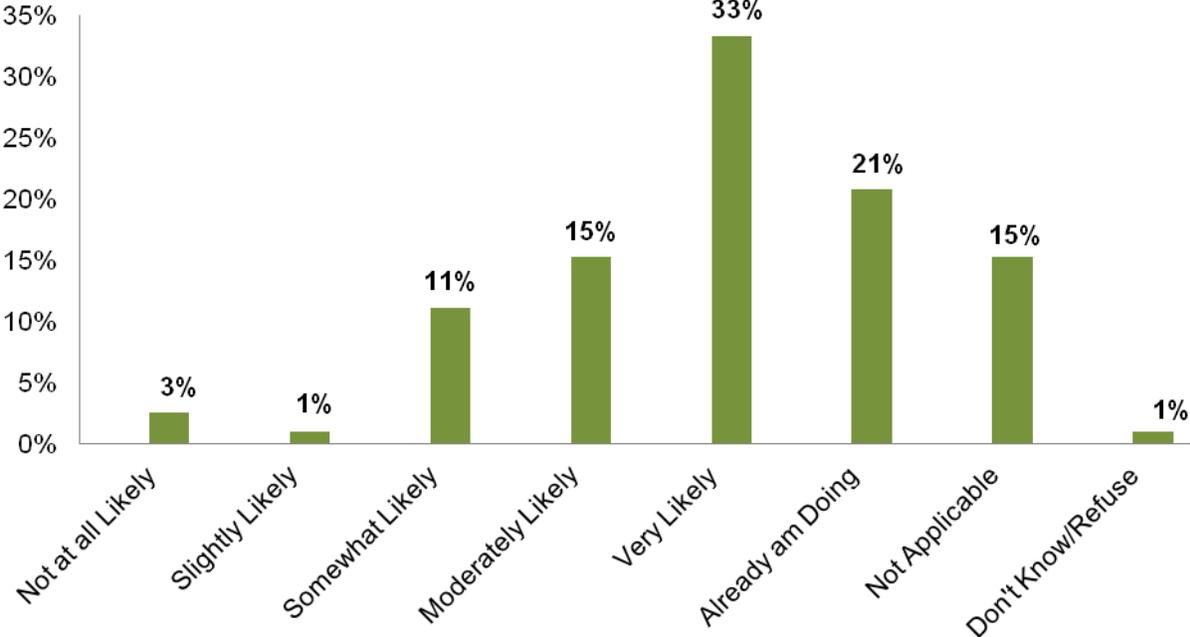
Of those respondents who use fertilizers at their residences, 20% reported that they were *moderately to very likely* to reduce their use of lawn chemicals.

14a. How likely are you to reduce the amount of lawn chemicals, such as fertilizers, pesticides, and herbicides that you use?



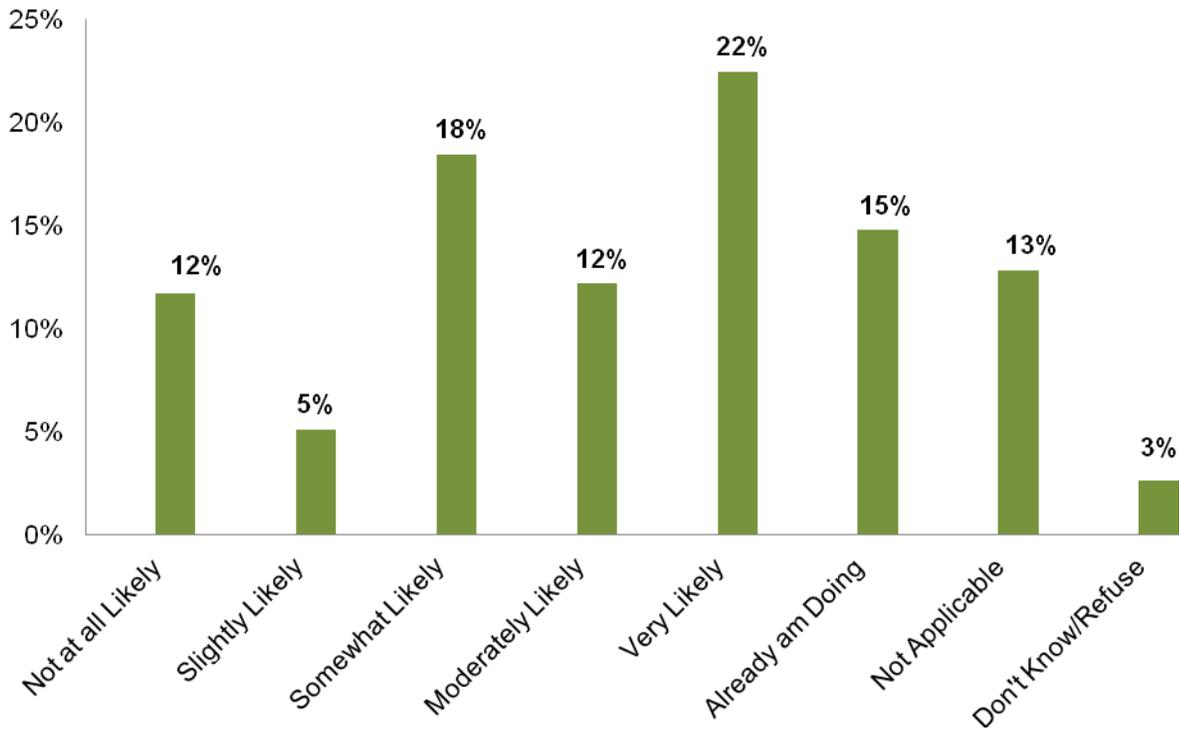
48% of respondents said they are *moderately* to *very likely* to take action to seed, plant or mulch bare areas in their yard.

14b. How likely are you to seed, plant, or mulch bare areas in your yard?



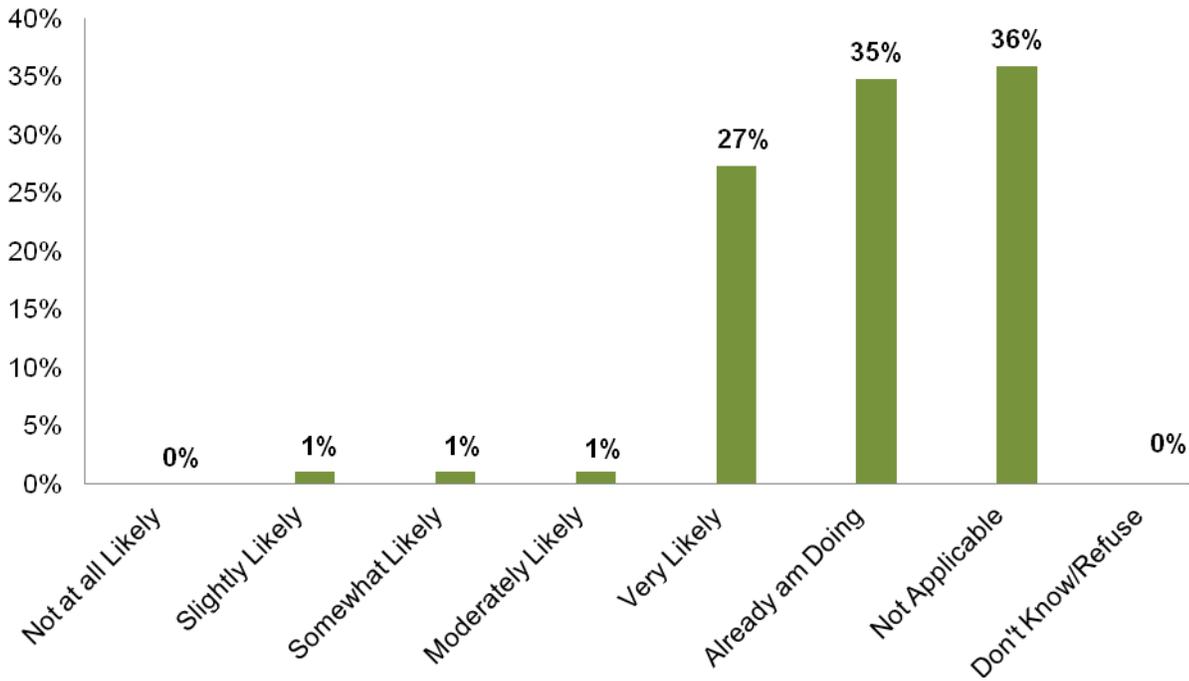
33% of respondents indicated they are *moderately to very likely* to plant trees, shrubs, and ground cover to reduce the size of their lawns.

14c. How likely are you to plant trees, shrubs, and ground cover to reduce the size of your lawn?



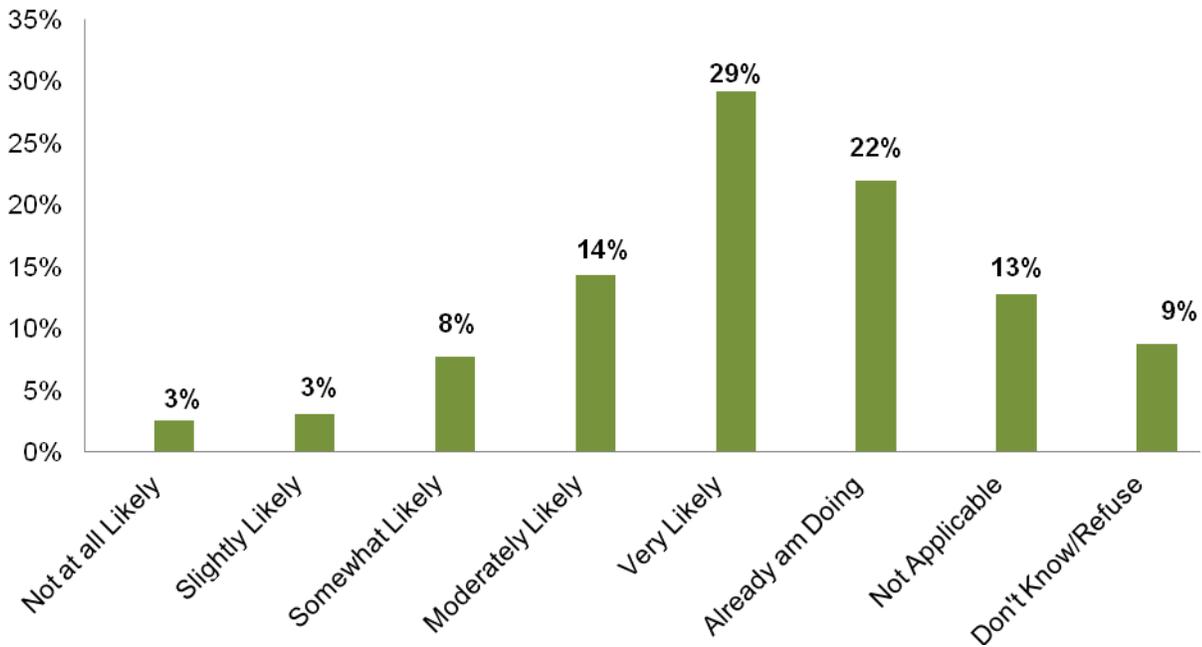
The majority (71%) of respondents either reported that this question *does not apply* or that they are already taking this action. An additional 27% reported they are *very likely* to take this action.

14d. When in public places, how likely are you to pick up your pet's waste and throw it in the trash?



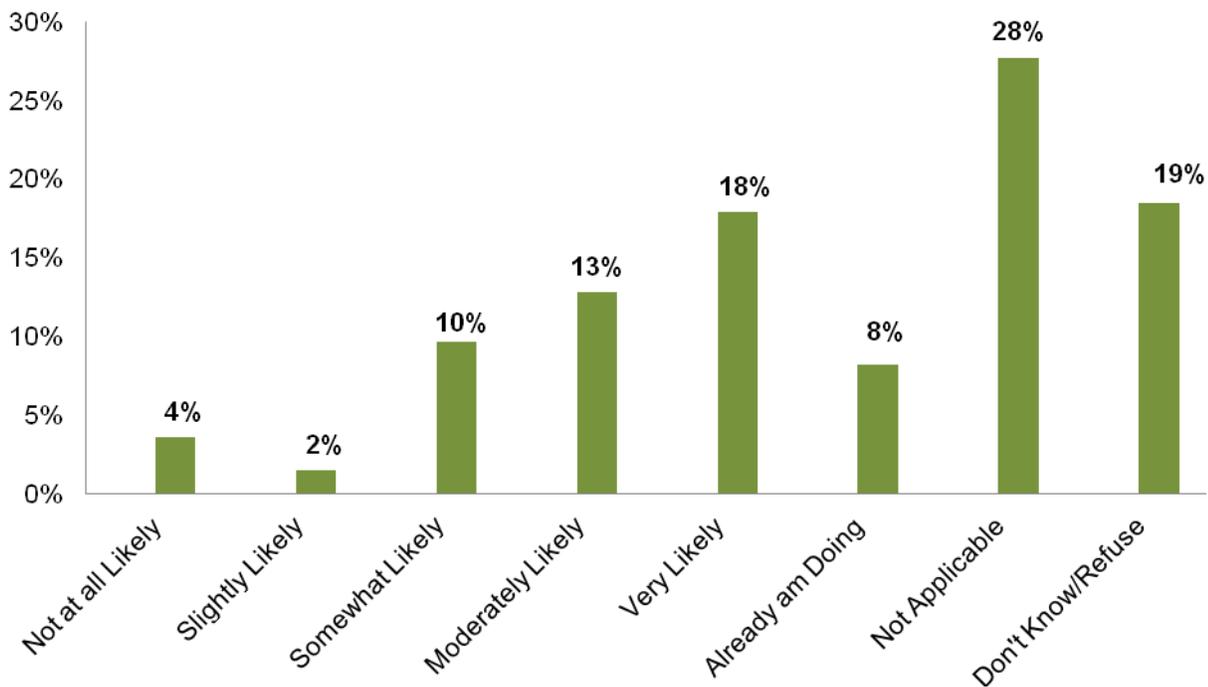
43% of respondents indicated that they are *moderately* to *very likely* to take action to mow their lawn no shorter than 2.5-3 inches.

14e. How likely are you to mow your lawn no shorter than 2.5-3 inches?



Although 31% of respondents indicated they are *moderately to very likely* to use phosphorous free fertilizer on their lawns, almost 20% were not sure if they would take that action*.

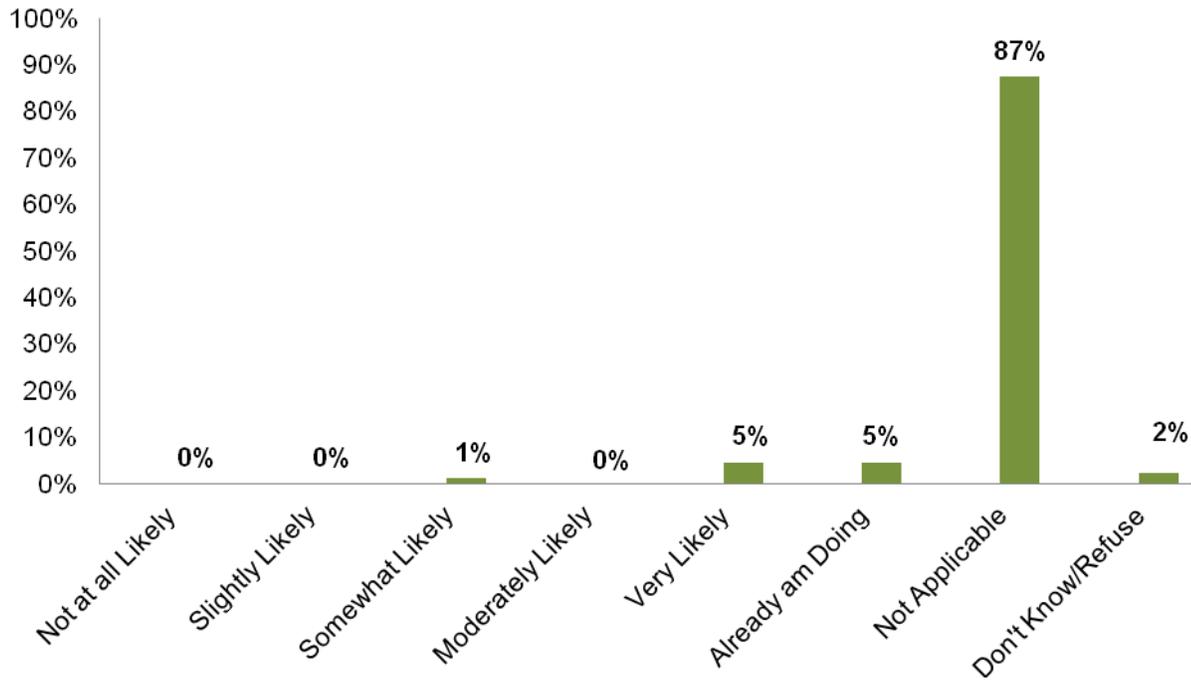
14f. How likely are you to use phosphorous free fertilizer on your lawn?



*I recommend revisiting asking this question. Often, people will respond to this question even if they do not use fertilizers. A large number of people also do not know what this question is asking and, thus, there are concerns with the validity of the responses given to this question.

When asked about properly disposing of cigarette butts, 87% reported that this question *does not apply*, and another 5% reported they were already taking such action.

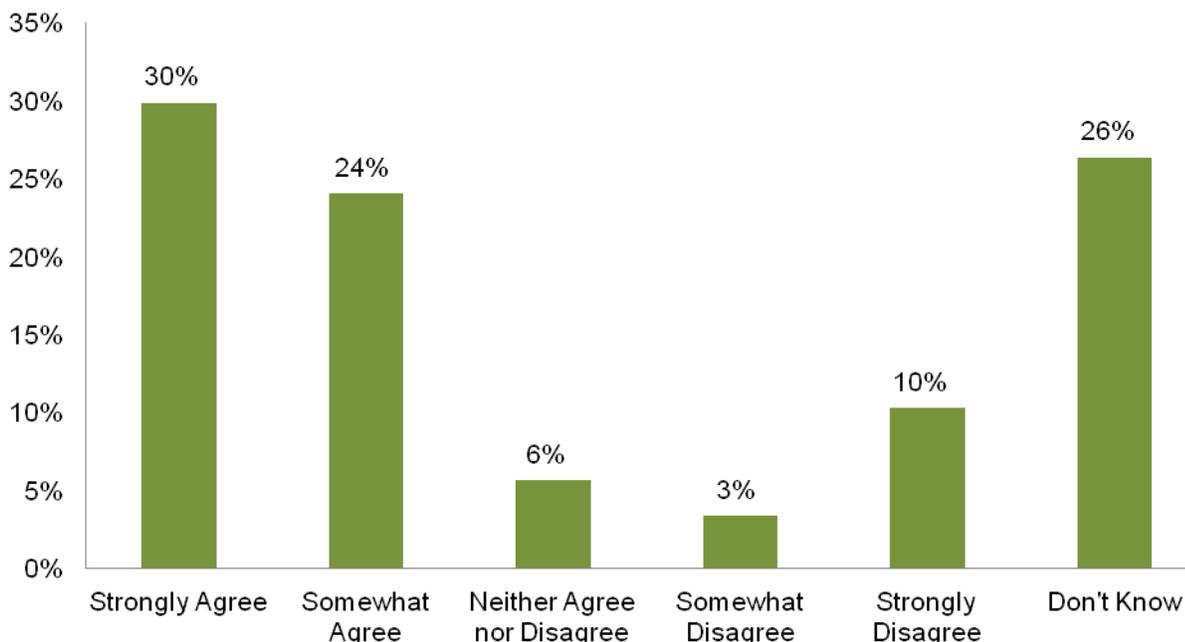
14g. When in public places, how likely are you to throw your cigarette butts in the disposal bin or trash?



*This question was only asked of online survey respondents or 86 of 199 participants.

When asked about their perceptions of their neighbor’s lawn chemical use, over half of the respondents indicated they *somewhat* to *strongly agree* that their neighbors use lawn chemicals. If social norms influence lawn care behavior in these communities, this finding indicates that debunking this norm perception may be important for changing behavior.

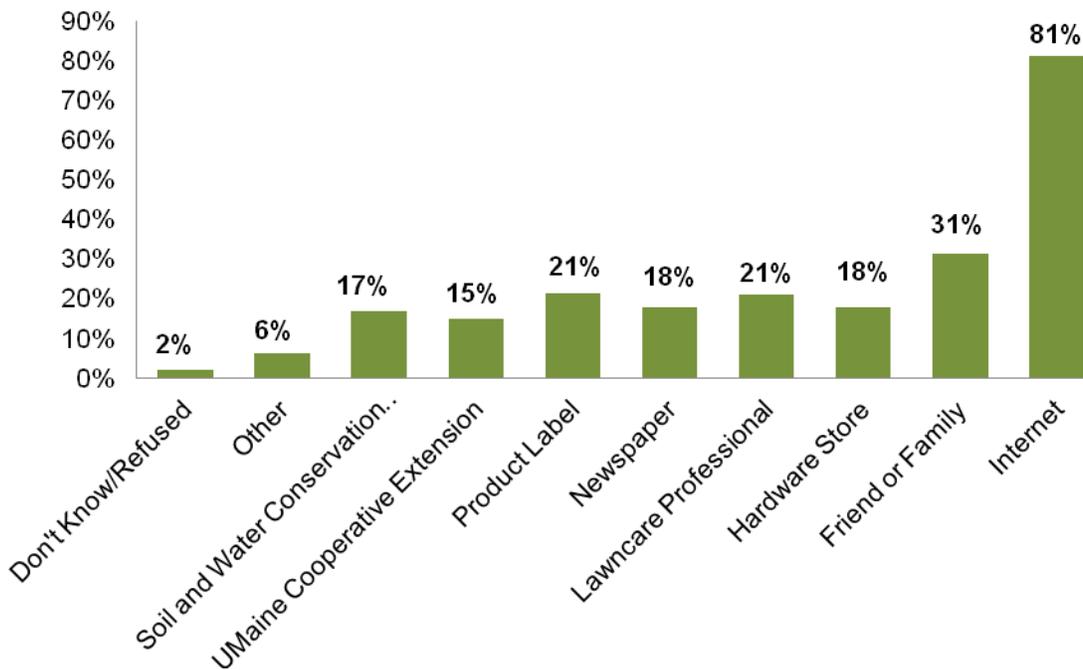
15. Indicate how much you agree or disagree with the following statement: "My neighbors use lawn chemicals, such as fertilizers and weed and bug killers."



This question was only asked of online survey respondents or 86 of 199 participants.

Over 80% of respondents indicated they would use the Internet to look for information on taking any of the actions in Q14a-14g, followed by friends and family, lawncare professionals, and product labels.

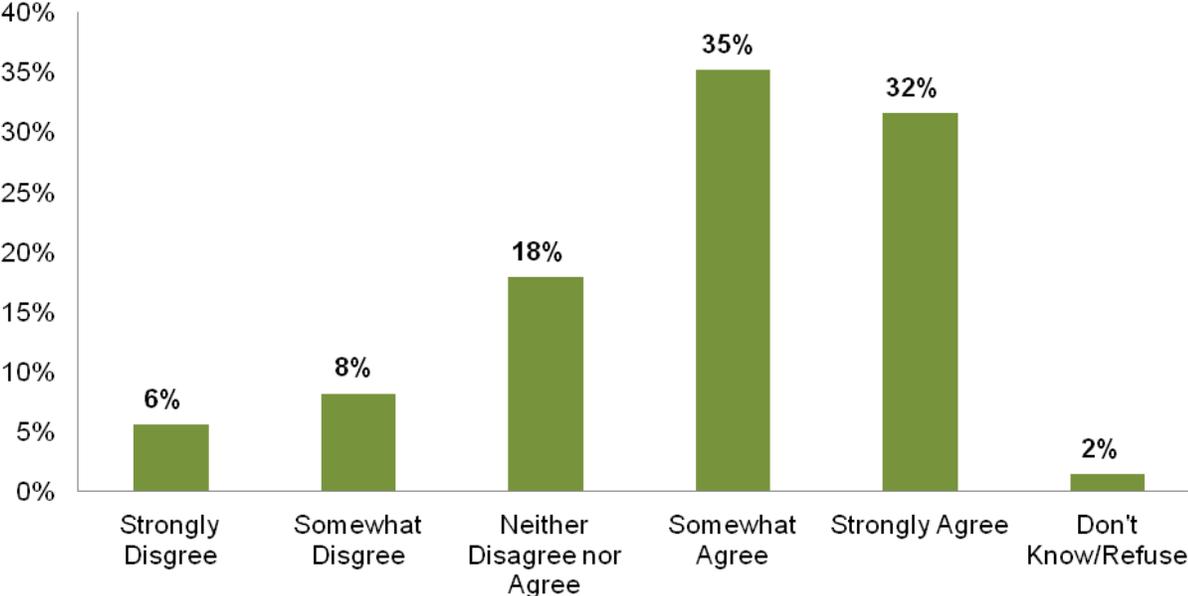
16. If you were looking for information on taking any of these actions where would you look?



See Appendix A for short answer responses to question 16 other, which asks respondents who select *other* to explain where they look for information.

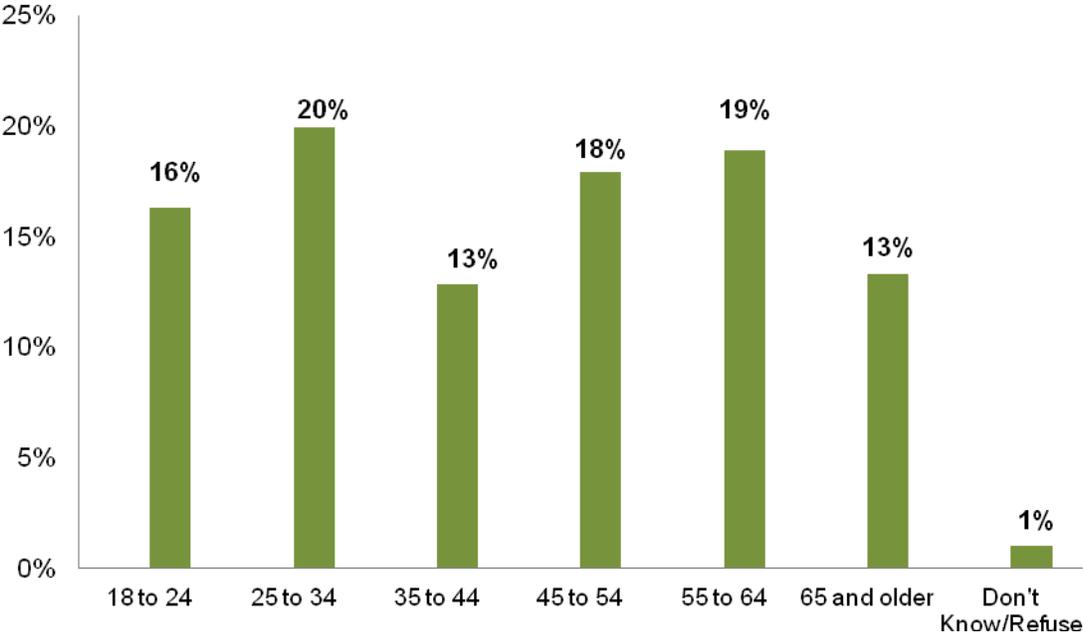
Just over two-thirds of respondents reported that they *somewhat to strongly agree* that the actions they take at their residence to maintain their lawns impacts the quality of waterways in the greater Portland.

17. How much do you disagree or agree that the actions you take at your residence to maintain your lawn positively or negatively impact the water quality of waterways in the greater Portland area?

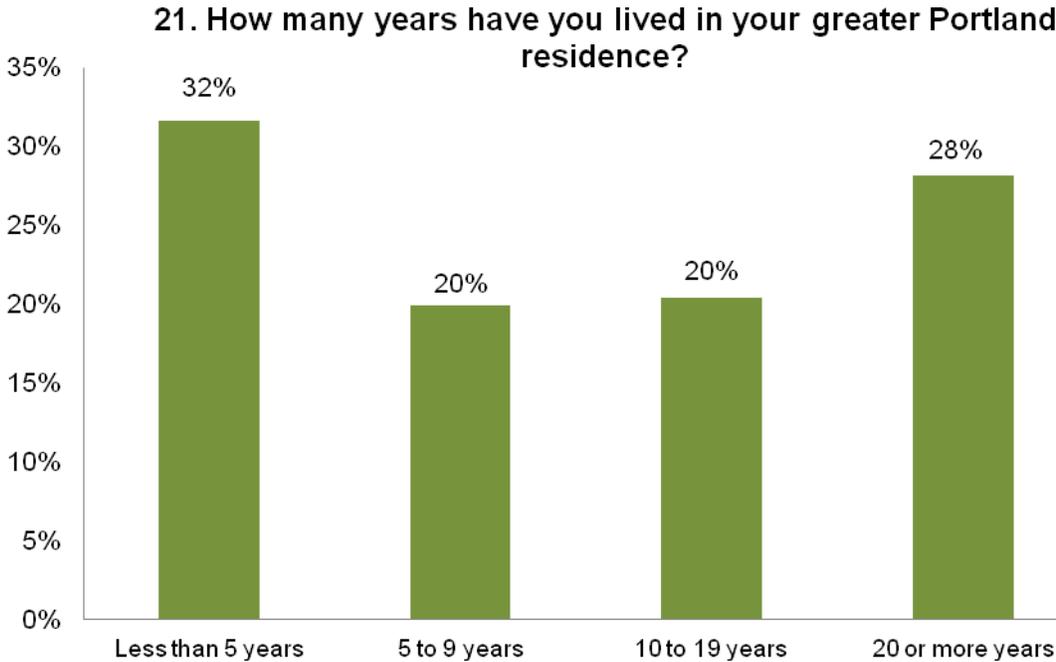


There was a good variety of age groups represented in the data, with 50% of respondents reporting being 45 or older.

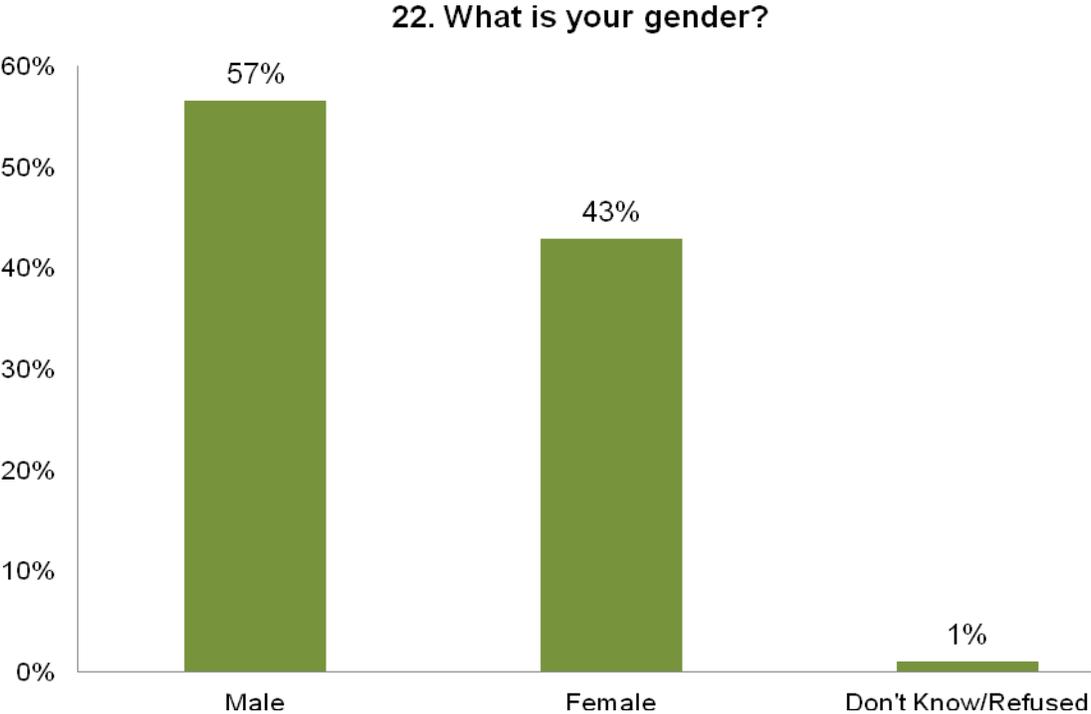
20. What is your age group?



Similar to the age question, residence times are dispersed across the residence categories. Slightly more residents reported living in their current residence less than 10 years than reporting living in their current residence more than 10 years.

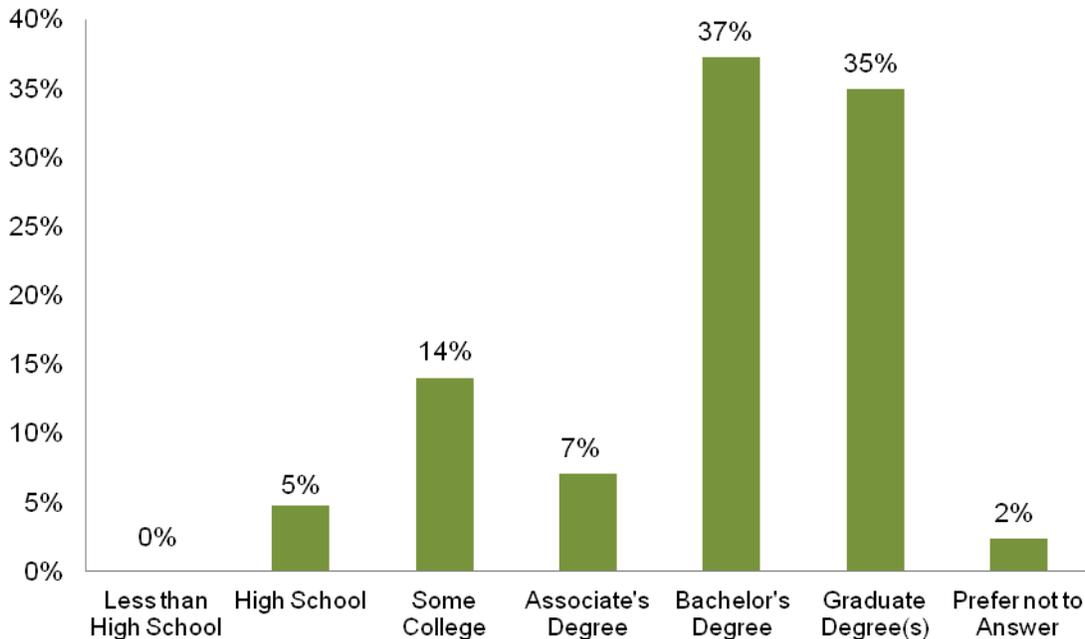


Approximately 14% more males than females completed the survey.



Over two-thirds of respondents reported education levels at a bachelor's degree or above.

23. What is your level of education?



This question was only asked of online survey respondents or 86 of 199 participants.

t-Test Results

t-test results are reported below by question. Significance levels are set at 0.1, which means that the probability of observing these differences by chance alone is less than 10%. It is important to keep in mind that the t-test only detects differences; it does not explain why the differences occur. For example, differences may be attributable to variables not associated with respondent traits, such as different survey formats (e.g. online versus intercept), different interviewer styles, and contextual issues, like weather, distractions, and visual stimuli at intercept and online survey locations that remind respondents of ideas being asked about in the survey. The results should be interpreted in light of these potential sources of influence.

Question 3: Results document that respondents at the Urban Runoff 5K rated the importance of the quality of waterways in the greater Portland area significantly higher than did respondents in Freeport ($t(64) = 3.76, p < 0.001$; $Mean_{urban} = 3.52 (0.58)$, $Mean_{Mall} = 3.00 (0.62)$), whereas online survey respondents rated the importance of the quality of waterways significantly higher than the Urban Runoff 5K respondents ($t(87) = 2.68, p < 0.01$; $Mean_{online} = 3.79 (0.51)$, $Mean_{urban} = 3.52 (0.58)$). There were no significant differences between Urban Runoff 5K participants and Maine Mall participants.

Question 4: Results reveal that respondents at the Urban Runoff 5K reported significantly higher levels of concern for the waterways in the Portland area than did Maine Mall respondents ($t(78) = 2.92, p < 0.01$; $Mean_{urban} = 3.23 (0.78)$, $Mean_{Mall} = 2.69 (0.86)$). There were

no significant differences between Urban Runoff 5K participants and Freeport or online participants.

Question 6: Results document that respondents at the Urban Runoff 5K reported higher levels of impact on the waterways in the greater Portland area from stormwater runoff than did respondents at the Maine Mall ($t(70) = 2.25, p < 0.05$; $Mean_{urban} = 3.56 (0.54)$, $Mean_{Mall} = 3.22 (0.69)$) or in the online survey ($t(101) = -1.78, p < 0.1$; $Mean_{urban} = 3.56 (0.54)$, $Mean_{online} = 3.37 (0.61)$). There were no significant differences between Urban Runoff 5K participants and Freeport participants.

Question 7: Results show that respondents at the Urban Runoff 5K reported higher levels of interest in taking action to reduce stormwater pollution than Freeport participants ($t(77) = 1.74, p < 0.1$; $Mean_{urban} = 3.17 (0.90)$, $Mean_{Freeport} = 2.88 (0.60)$). There were no significant differences between Urban Runoff 5K participants and Maine Mall or online participants.

Question 8: Respondents at the Urban Runoff 5K reported higher levels of recall of water pollution advertisements than participants at any other venue ($t(74) = 1.66, p < 0.1$; $Mean_{urban} = 0.42 (0.49)$, $Mean_{Freeport} = 0.24 (0.43)$; $t(68) = 1.99, p = 0.05$; $Mean_{urban} = 0.42 (0.49)$, $Mean_{Mall} = 0.21 (0.41)$). However, online participants reported higher recall of water pollution advertisements than Urban Runoff 5K participants ($t(95) = 3.14, p < 0.01$; $Mean_{online} = 0.70 (0.46)$, $Mean_{urban} = 0.42 (0.49)$).

Question 10: Respondents at the Urban Runoff 5K reported higher levels of recall of local efforts to reduce stormwater pollution than participants at any other venue ($t(74) = 3.10, p < 0.01$; $Mean_{urban} = 0.54 (0.50)$, $Mean_{Freeport} = 0.22 (0.42)$; $t(73) = 4.13, p < 0.001$; $Mean_{urban} = 0.54 (0.50)$, $Mean_{Mall} = 0.14 (0.35)$). There was no significant difference in recall between Urban Runoff 5K participants and online participants.

Question 11: Respondents at the Urban Runoff 5K reported higher levels of recall of local efforts to reduce residents' use of lawn chemicals than participants in Freeport ($t(60) = 2.99, p < 0.01$; $Mean_{urban} = 0.25 (0.43)$, $Mean_{Freeport} = 0.03 (0.17)$). Online participants reported higher levels of recall than Urban Runoff 5K participants ($t(99) = 2.55, p < 0.05$; $Mean_{online} = 0.47 (0.50)$, $Mean_{urban} = 0.25 (0.43)$). There was no significant difference between Urban Runoff 5K participants and Maine Mall participants.

Question 12: A higher number of online participants reported using lawn chemicals at their greater Portland area residences than did Urban Runoff 5K participants ($t(109) = 2.42, p < 0.05$; $Mean_{online} = 0.45 (0.50)$, $Mean_{urban} = 0.25 (0.43)$). There were no significant differences between Urban Runoff 5K participants and Freeport or Maine Mall participants.

Question 17: Urban Runoff 5K respondents reported significantly higher levels of agreement with the statement that the actions they take at their residences impact the quality of waterways in the greater Portland area than did Freeport ($t(77) = 1.86, p < 0.1$; $Mean_{urban} = 4.13 (1.02)$, $Mean_{Freeport} = 3.76 (0.75)$) and online participants ($t(116) = 2.42, p < 0.05$; $Mean_{urban} = 4.13 (1.02)$, $Mean_{online} = 3.61 (1.37)$). The standard deviation scores above 1 for the Urban Runoff 5K and online indicate that there is variability among participant responses to this question. There was no significant difference between Urban Runoff 5K participants and Maine Mall participants.

We did not find significant differences between Urban Runoff 5K participants and Freeport, Maine Mall, or online participants for questions 9, 10b, 11b, 12a, 13 or the demographics questions. We did not run t-tests for Q14 due to the high number of *does not apply* and *already am doing* responses.

Brief Text Analysis

Overall, residents seem to be well aware of the pollutants contained in stormwater. In fact, although the majority of respondents did not recall seeing advertisements about water pollution or hearing about local efforts to reduce stormwater pollution, the items they identify as pollutants resonate with the messages about pollution supported by local and state organizations. Among other items, Portland residents most frequently named such pollutants as: pollutants from vehicles (e.g. oil), pesticides and fertilizers, trash, pharmaceuticals, salt and sand from winter maintenance, and human and pet waste.

Residents most frequently noted recalling the following advertisements about water pollution (Question 8a): rubber ducky ad, mailings, newspaper articles, local projects in the city, and personal experiences, such as being a member of an environmental group. While many residents did not recall the meaning of the rubber ducky advertisement, those who remembered what they took away from the commercial reported that it was discussing pollutants, the additive effects of even small amounts of pollution, and the flow of pollutants in water within the watershed.

Regarding recall of local efforts, residents recalled mailings, neighborhood events, storm drain stenciling, city sponsored projects (e.g. household hazardous waste day, reconstruction projects around the mall, and stream restoration projects), and city-wide events (e.g. the Urban Runoff 5K). Residents seem to be aware of public events that are highly visible and connected to individual municipalities. Public events could be ideal opportunities to incorporate educational messages about stormwater and individual actions to prevent stormwater pollution. When asked about behavior changes as a result of local efforts, residents largely reported reducing their use of lawn chemicals and using organic products.

The waterways participants most frequently noted as important to protect include: "All," Back Cove, Back Bay, Casco Bay, Presumpscot River, Fore River, Saco River, and Sebago Lake. Respondents also mentioned "Beaches," Old Orchard Beach, and Capisic Brook and Pond. Activities around these specific waterbodies or messages connecting stormwater to these waterbodies are likely to improve resident awareness of local efforts and stormwater because these waterbodies are well-known and important places to home owners in the Portland area.

Implications

Based on survey responses, we expect that between one third and two thirds of all home owners in the greater Portland area value water quality and understand that stormwater is an

issue in the Portland area. Between two thirds and seven eighths of participants reported concerns with the quality of water in the area and are interested in taking some action to reduce pollution from stormwater runoff. Further, approximately one half to over two thirds of home owners understands that what they do on their property may influence water quality in the local watershed. In other words, we expect that municipal officials, state agencies, and local organizations will meet a receptive audience in these communities for addressing stormwater issues.

Between one third and two thirds of home owners recall seeing advertisements about water pollution and the rubber ducky advertisement. Less than half of respondents recall hearing about local efforts to reduce stormwater pollution or to reduce the use of lawn chemicals. With that said, recall of the rubber ducky advertisement is relatively high (55%). Over two thirds (67%) of residents who had heard about local efforts to reduce the use of lawn care reported taking specific actions as a result of local efforts. This latter result indicates that increasing resident awareness of local efforts is likely to result in improvements in residents' environmentally-friendly behavior.

As municipalities, state agencies, and local organizations plan future strategies and target campaigns, they should keep in mind that between 54% and 68% of homeowners in the greater Portland area likely do not use lawn chemicals, and if they do use lawn chemicals. Of the residents who reported using lawn chemicals, over half indicated they apply the products between 2 and 4 times per year. Future campaigns may want to consider strengthening messages that help people understand the number of times per year they may need to apply lawn chemicals. While messages about reducing the use of lawn chemicals or applying them a certain number of times per year are important, municipalities may want to consider different target behaviors, such as seeding, planting or mulching bare areas in the yard or mowing higher. Based on responses, people seem likely to adopt these seeding, planting, mulching and mowing behaviors. Finally, approximately half of home owners likely perceive their neighbors to use lawn chemicals. The influence of social norms on residents' lawn care practices should be further explored. If social norms are pressuring residents to maintain their lawns in certain ways, changing perceptions of neighbors' behavior and changing the actual social norms may positively change individual homeowner behavior.

Among homeowners in the greater Portland area, pet waste, and cigarette butt disposal do not appear to be problematic. Several respondents noted that road salt and sand are stormwater pollutants, and approximately 50% reported using chloride-based products on their walkways and driveways in winter. Educational initiatives that help train residents on how to properly apply salt and sand in the winter months may be well received, given the perception of it as a pollutant. To explore this option, Fortin Consulting is a good reference. The consulting firm has several videos on residential and small business salt application.

Residents specifically seeking information about lawncare practices are likely to seek information on the Internet and from friends and family, lawn care professionals, and product labels. Trainings for lawn care professionals on environmentally-safe practices and working with companies on product labels are two activities that may help to ensure residents are receiving quality information about lawn care practices from these sources.

Future evaluations may want to consider the following questions:

1. What do residents understand about stormwater and the flow of water in the watershed?
2. What other residential practices are occurring that might contribute to stormwater pollution that could be part of future messaging campaigns?
3. What types of messages are most influential, e.g. appeals to social norms or emotional appeals to health and safety?
4. What are the trustworthy sources that might be most persuasive to residents?
5. To what extent do residents in the Portland area use professional lawn care services to maintain their lawns?
6. What are residents' perceptions of the ability to improve water quality through changed residential practices?

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5. Polluted stormwater runoff refers to pollution that is carried into rivers and streams, lakes, and the ocean by rain or melted snow. What types of pollution do you think of when you think of pollution being carried into lakes and streams by stormwater run-off?

Agricultural chemicals, petroleum byproducts from vehicles, domestic waste
Agricultural pesticides & insecticides, etc., road treatment, point source chemicals, and more broadly general trash
All litter, vehicle runoff, chemicals
Animal waste, car runoff, trash, chemicals
Animal waste, fertilizer, litter
Animal waste, oils, trash, fertilizer
Any type of waste
Any vehicle waste, Animal waste, peoples meds down drain
Anything that goes into the water
Automobile and truck fluids (oil, anti-freeze), lawn fertilizers and pest controls, Ice melt salts
Automobile fluids, pesticides, cleaning chemicals, fuels, battery acids.
Bad
Bleach, fertilizer/pesticides
Boat gas, trash
Car oil
Car run off, sewer drains over-flowing
Cars, sewer issues
Chemical pollution - gasoline, oil, salt, road treatment chemicals; litter
Chemicals (both from house's lawn)
Chemicals and human waste
Chemicals, dead animals, plastic
Chemicals, fertilizer, pest

Chemicals, human debris/litter, pet waste
Chemicals, medicines, household chums, dog waste
Chemicals, sewage, etc
Cigarette butts, animal waste, pesticides, gardening / lawn chemicals
Cigarettes, trash, fertilizer
Clarify
Dog waste, oil, fertilizer
Dog/animal waste
Doggie waste! People's trash!
Don't know but should something
Don't know what stormwater is
Engine oil, salt & other chemicals e.g. paint thinner, etc.
Everything on the ground rain washes into drains, streams, rivers
Everything put on streets!
Everything sewer collection
Everything: anything that goes in sewer, sewage overflow, oils, meds, people not picking up animal waste, fertilizer, salts
Excess fertilizer, excess animal manure,
Excess soil, clay, sand or gravel contaminated or not with toxic materials. Anything not supposed to be there.
Fertilizer
Fertilizer, gasoline
Fertilizer, oil, fecal matter
Fertilizer, sewage, oil etc from cars, hard waste (paper etc being discarded)
Fertilizer, waste, plastic bags/bottles
Fertilizers, pesticides, automotive/oil, excessive salt
Fertilizers, pesticides, road salt
Fertilizers, salt form roads, petroleum spills
Fish are impacted, chemicals
Garbage
Garbage people throw on streets
Garbage, chemicals, from car washer and stuff
Garbage, fecal matter
Garbage, fertilizer, pest.
Garbage, pharmaceuticals, oils
Garbage, plastic bottles
Gas and oil from roadways, silt, lawn chemicals
Gas, oil, antifreeze, sand, silt, phosphates, fertilizer
Gasoline, motor oil, lawn chemicals, salts
Gravel, oil spills, lawn care products, careless use of fires, human waste
Gross when people throw cigarettes into waterways or on ground! Other trash too
Groundwater and its contents plus contaminants from surface water

Hazardous wastes, cigarette butts, garbage, industrial runoff from businesses, fertilizers and pesticides from farms
Home, farm and business where chemicals end up in the runoff
Household chemicals (bleach, paint, sprays, fertilizer, pesticides) oils, dumps runoff
Household chemicals, waste, trash
Human and animal waste
I *think* of how many minutes it would have taken to PROOF READ the questions on this form...
I am not sure of what the question is here and believe much more attention should have been given with this survey. However, I wonder if the materials used in winter snow melting on the roads is safe to our waters.
I think of engine oil, detergents, yard fertilizers or other lawn chemicals and weed-killers, silt/soil or other debris from erosion or construction sites.
I think of lawn and garden chemicals, road salt, auto fluids, asphalt and pool chemicals.
I think of pollution from Autos -oil, anti freeze and other byproducts being washed out to sea when it rains
Industrial pollution, sewage from old pipes
Industrial wastes
Industrial, chemical, home pollutants, fertilizers
Industrial, residential, storm drains, fertilizers, insecticides.
Lawn chemicals, runoff, street stuff
Lawn fertilizer and pesticides
Lawn fertilizers, sewer overflow waste
Lawn pesticides, fertilizers, trash, etc.
Lawn treatments, home cleaning chemicals from house & auto cleaning, pool discharges, auto leakage onto roadways
Litter, carbon waste
Litter, pet waste, oil-cars, gasoline, house paint, pesticides
Lots of trash
Man made
Many things from urban areas. Lots of trash and chemicals
Mechanical oil
Meds people flush! Any car fluids
Most everything water touches
Most trash and stuff from dumps
Mostly trash and chemical leaks/spills
Motor oil, pesticides
Nitrogen, coli form bacteria, phosphorus
Not really sure
Not sure
Not sure really
Not sure, lots of things probably
Not sure, trash maybe?
Oil
Oil , gasoline, road salt,

Oil and trash
Oil chemicals trash sewage
Oil from cars
Oil from cars
Oil residue, trash, plastic
Oil spills is one that comes to mind despite better regulation this is still a concern. Pesticides are something that is very concerning to me with the foods we eat but would also pollute our waterways in a lesser manner than oil\gas spills.
Oil, cleaning chemicals, road salt
Oil, dirt, chemicals
Oil, dog waste
Oil, fertilizer, pet waste
Oil, industrial waste, paper mills
Oil, salt, gasoline, radiator fluid, moth balls, animal dead
Oil, waste, meds
Oils and all chemicals like fertilizer and sprays for households
Oils from cars, cigarette butts
Oils, chemicals, and litter
Oils, grease, metals, bacteria
Oils, salts, chemicals (all kinds)
Oils, trash, pesticides
Oily street residue, fertilizer, waste oil, effluent overflows from sanitary sewer systems.
Parking lots, cars, fertilizer, yard area
People litter, spills on the streets and sidewalks
People's trash
People's trash, litter, animal waste
Pesticides
Pesticides and farm run off
Pesticides and such from lawns and fields, and oil and such from cars and trucks
Pesticides from farms, and the fertilizer they use
Pesticides, fertilizer, bags and bottles
Pesticides, herbicides, salt, and anti-ice substances, whatever is toxic that comes from cars, anything not good in the air/rain
Pesticides/fertilizers/illegal dumping/inadequate stormwater discharge capacity/winter salt
Pet waste, fertilizer, and auto waste
Petroleum components and chemical fertilizers
Petroleum issues, salt in winter
Petroleum products, pesticides and biological contaminants
Petroleum, heavy metals, paints, toxic household products, medicines

Pharmaceuticals, chemicals, oils anything from the streets
Plastics, garbage
Plastics, garbage, especially after summer when tourist leave trash on the shores of waterways
Poisonous/hazardous liquid and/or solid waste.
Pollution, trash, garbage
Prescription drugs, chemicals, pesticides
Raw sewage /waste water
Remains, fertilizer, litter
Road Salt, Automobile Fluids, & Cigarette Butts
Road salt, dumped or runoff auto lube oil, trash & debris, lawn & garden chemicals, soil, pet waste, leachate of landfill waste-capped or uncapped
Road salt, lawn chemicals, petroleum product residue, residual medications not absorbed in the human body that pass into sewage
Road salt, sand and oil, animal waste, pesticides, debris
Salt from road snow melt.
Salt from the roads; trash on roads
Salt, grease, and oil
Sewage overflow from inadequate residential systems and antique waste systems
Sewage, chemical contamination
Sewage, industrial waste
Sewer over flows, pesticides, lawn fertilizer.
Sewerage, herbicides, fertilizers and insecticides
Silt, fertilizers, petroleum products, solvents, pesticides, herbicides, human waste
Storm runoff
Street run off, fields
Street, car waste
The spraying of the unused railroad tracks of the trails in Gorham that run along the river and up to Sebago Lake Village plus on the supplies that are used for all the cottages and Homes that surround our lakes and rivers.
Things in street, household fertilizer/chemicals
Toxins, paint
Trash
Trash
Trash
Trash & chemicals
Trash, animal Waste
Trash, animal waste
Trash, animal waste
Trash, chemical, fertilizer
Trash, chemicals, oil, pharmaceuticals
Trash, fertilizer
Trash, fertilizer, oil
Trash, fertilizer, pet poop
Trash, gasoline/diesel from boats, plastic
Trash, lobsters and fish being polluted

Trash, oil from cars, gas
Trash, plastics, general dirt from runoff, overflow
Trash, waste
Trash, waste
Trash, waste
Trash. Lawn, fertilizer, any household chem.
Trash? Maybe oils too
Urbanization causes a buildup of everything. Cars, garbage, people not knowing how to properly dispose
Various trash
Vehicle fluids, trash can waste liquids
Vehicle runoff such as oils, fluids, animal waste, plastics
Waste
Waste center runoff (it's not even covered), tons of oils/chemicals from them
Waste, litter, trash, plastics

8a. Can you tell us a little bit about what you've heard (about the advertisement regarding water pollution)?

A series of rubber duckies floating down stream to become a large flock of duckies representing how pollution travels through runoff.
Accumulation of ducks representing accumulation of chemical runoff
Ad addressing fertilizer
Ads for this race, think blue flyers
Article(s) in Portland Press Herald about storm drains dumping urban runoff directly into Casco bay
Back cove project, heart about
Been a while since seen rubber duck ad
Can't recall, but am aware of work being done on Baxter Blvd which I think has to do with runoff issues
Casco bay estuary
Changing Portland's sewage system to prevent direct discharge into the ocean. It was saying we have a problem, but it can be fixed.
Cumberland county, water and soil conservation
Don't pollute.
Don't recall specifics or publication, but I have a general awareness of nonpoint pollution and CSOs from ads, PSA and media reports
Don't remember
Don't remember exactly what it was about.
Door-to-door campaign
Friends of Casco Bay advertising for volunteers to stencil storm drains
I believe I have seen signs along Baxter Blvd if not then probably a newspaper article
I can't recall exactly, but know I saw a TV ad one in a flyer

I can't specify advertisements. I don't have a TV but I do read the paper. Also I am a member of a number of conservation/environmental groups. It may be I mainly read articles about it. Advertisements XX rain barrels through the water district.
I have received mailings from a group promoting lawn safe chemicals and offering Trash bags to be a reward for using better chemicals for lawn care. I don't put stuff on my lawn
I read articles in the newspaper concerning raising sewer rates on properties with large roofs and large blacktop areas
I saw a PSA on television showing the ducks flowing down the storm drain, it shows that even things that look harmless can be harmful in greater quantities
I saw an ad about the quality of Maine beaches and water as not being what it should be. I was somewhat disappointed.
I thought I heard something on the radio about car oils and runoff
"If water pollution were Rubber Ducks and we could see it, we'd all be a lot more concerned about water pollution." The ad shows thousands of rubber ducks floating down sewer drains.
Informative signs around city (not sure who puts them up)
It was the yellow Ducky PSA's that spoke about storm drains and the run off leading to the ocean
I've seen City or Town advertisements for rain barrels, hazardous waste days, use of Dunks for mosquito control, etc. Some for organic lawn treatment. Ads encouraged people to consider these options to reduce their resource use. These ads were in local newspapers. We don't watch television so don't see any TV ads.
Lakes environment had something
Lawn fertilizing can and does wash off into waterways
Local ads in the community about fertilizer use and how water is affected
Local weekly papers carrying articles
Many different events addressing the problem
News articles what Portland is doing to update their systems
News articles, constructing
News story about the problem of discarded cigarette filters.
Newspaper, email
Not advertisements: Talked with an engineer who had worked here in past
Notifications about storm water overflow project in Portland back cove area that explained why project was necessary, what they were trying to achieve with project.
Our company provides industrial controls for wastewater pumping stations as well as treatment plants...information mostly through Maine Wastewater Control Association
Painting yellow fish by storm drains to inform where water goes
Pamphlets
Portland Water district information regarding pollution of Lake Sebago. This impacts on the Greater Portland area significantly.
Radio? Warning of fertilizer in run-off when used incorrectly.
Recent newspaper articles regarding the pollution of Maine's beaches.
Rubber Duck ad
Rubber duck showing how far run off is
Rubber ducks
Rubber ducks
Rubber Ducks in drains

Rubber ducks of some sort
Saw an advertisement about recycling so plastic doesn't go into ocean
Silt pollution ads in newspaper. destroys water quality and kills fish
Some TV advertisements, sponsorships from Maine Healthy Beaches
Something from the water district
Stickers by drains
Stop liter
Stormwater pollution overwhelms sewage treatment facilities resulting in untreated sewage discharge
Television, newspaper and magazine ads - the importance of picking up after pets, not using chemicals in yards and for pest control, changes being made in products to reduce harm to the environment. Project on Baxter Blvd in Portland long overdue
The add informing of the closing of Baxter Blvd.
The ducks were representing the run off of polluted water.
They were ads or articles on how something was cleaned up, and efforts of the Portland Water District to improve their equipment and thus the water we drink
Think blue
Think Blue Maine
Think blue, civil coalition, urban runoff
Think blue, water con. District always promote reduction of pollution/stormwater runoff
Today
TV ad asking the public to be careful about what goes into storm drains
TV ads
TV radio, newspaper. Resident works for DEP
Urban runoff
Water/sewer bill and the message: I am going to be charged more
Watershed signs
We receive Environment Maine communications where runoff has been a focus of their efforts, we boarder on the Capisic Watershed and have seen communications from the City of Portland regarding run-off and how we can prevent polluting our local waters.
What comes to mind is more along the lines of companies marketing their water purifier systems. We constantly get reminders from various media outlets on the problems now with most lakes. China gets a lot of press on their major problem in their quality of water.
Work on Baxter Blvd

9a. Can you tell us a little bit about the advertisement, such as what you felt it was saying (rubber ducky ad)?

After lawn care, care washing,
All I can remember is the little duckies floating in the water.
All I know is the ducks represented pollution/trash
All water is polluted
All water systems are connected

An animated video clip. Polluting fish environment and plugging waste water filtration and processing facilities.
Be careful about [unknown]
Caught just a few seconds of ad; showed dog waste turning into ducks, and being washed down the drain as pollution.
Do your part to reduce waste & chemical runoff
Dog poop=bad
Don't remember, I just remember the ducks
Don't pollute
Don't pollute b/c it spreads
Don't pollute rainwater.
Don't remember
Don't remember
Don't remember
Ducks illustrated pollutants running into waterways
Ducks= metaphor for pollution. Everything is connected and even small pollutants have large impacts
Everything flows to the sea
Excellent ad! I think it applies to all ages and everyone can take away from it.
Follow the flow (but don't remember what about)
Good example explanation
Great ad! Shows the ways that pollutants make their ways to the waterways
Heard about it, but not sure
How pollutants affect all of our waterways
I believe it was saying that everything flowing has an effect on all of us.
I don't remember the commercial other than the fact that lots of yellow rubber ducks accumulated in one place. I don't watch a lot of TV.
I don't recall exactly but I do remember, kind of heard it in the background
I recall the ducks. Making the point about accumulation of pollutants
I remember seeing a lot of yellow ducks floating along the water, representing how stormwater waste flows through our rivers and streams. I felt it was saying that we are all responsible for doing what we can as citizens to avoid polluting our waterways (i.e. don't toss hazardous chemicals into the sewers).
I remember seeing that ad and the info that everything including dog poop can easily wind up in the stormwater traps and even places that dump directly into Casco Bay. Again I was somewhat disappointed that this was happening.
I remember, but no
I saw the PSA on television showing the ducks going down the drain and popping up here and there in different places. I believe it is showing that you may spill just a little bit or drop a piece of trash and it may not seem like a lot but cumulatively it can make a huge impact on the environment.
If the disgusting materials floating into storm drains turned into rubber duckies we wouldn't have a problem

If you pollute, it runs downstream
I'm sorry -- I just recall the ducks, I don't honestly recall the message. I'm a single mom of an 8 year old.
Individual ducks flowing down stream adding to others and eventually creating a significant grouping at the ocean - showing how pollution via run-off collects and enlarges and becomes significant.
It did not leave a strong feeling regarding danger of run-off. Just kind of cute.
It was about reducing pollution
It was an effort to discourage littering that can in the water
It was saying that what we do locally flows downstream and accumulates in rivers and the ocean
It was showing the chain of events when pollution from one area can be carried by rain to rivers and the ocean.
Just remember seeing it
Just remember the ducks
Just that stormwater led to the bays and oceans
Know through work
Love! So cute
Makes you think about polluted waterways
Much more than a year ago and do not remember
Not sure. I skimmed the image. I assume it was emphasizing the course that water flows throughout the landscape
Not to use pesticides in your yard
Of course! I encourage people to look it up.
Plastic floating in the rivers
Plastic floating in the water
Pollutants in the water ways
Pollutants never leave the system I think is what it is getting at
Pollution flows into systems
Pollution stays in the system, for waterways
Probably saw more than heard. Knew what it was about but didn't listen
Public should be aware that dumping waste into storm drains pollutes rivers, streams and the ocean
Reduce pollution
Rubber ducks going down drains/rivers like pollutants do
Rubber ducks representing storm water runoff pollutants and how we needed to be aware and start practicing ways to limit
Rubber ducks went into the Presumpscot River, and the article followed their whereabouts; the idea was to show how things (pollution) traveled and permeated the waterways
Runoff
Runoff swept ducks into storm drains then from the outfall into a nearby waterway or beach area
Same as answer 6

See prior question.
Sewers empty in the ocean.
Shows the path of pollution to the sea
Small amounts of waste will accumulate and can cause massive pollution
Something about pollutants
Something about water
Sorry, not much of a TV watcher...
Stamped fish on streets, where comes from reminder not to put things down drain
Stormwater has existed since the beginning of time. Herbicides and insecticides are new to the environs
Stormwater pollution accumulates as water runs its natural course. We just don't realize how far-reaching is that flow and subsequent accumulation of pollution.
Stormwater runoff is lowering water quality and harming wildlife and fisheries.
Television advertising is pretty and flashy but its message often times gets lost in the pictures. Trickle-down theory works here.
Television....doesn't really do anything for me in terms of problem...very simplistic approach to complex problem
That stuff stays in water
The ad was talking about how the storm drains lead to the ocean.
The additive effect of toxic runoffs
The cute ducks act as toxins polluting water
The ducks flowed and something about pollution
The number of pollutants being carried into the ocean
The TV commercial showed how things going down storm drains end up in our rivers and oceans. It pointed to the accumulative affects of pollution
There were little dudes that very into the water system and moved from one to the next
They go into drains to the ocean
They showed one duck
Throw the rubber duckies into the drain to see where they go
Water flow of trash
Water pollution is a problem
Water runoff, plastic pollutants
Way more than year ago!
What I described in 6a - showing how small amounts of pollutants can accumulate into a large problem
What someone throws into a storm drain ends up in streams.
Whatever is on the ground gets in the way
Yes! Follow the flow or some slogan if I remember correctly

10a. Will you tell us a little bit about what you heard (regarding efforts by local organizations to reduce pollution from stormwater)?

As said before water district promotions this race! An envi.org (can't remember name)
Awareness
Blue Maine or something
CCSWCD
Chemical free lawn products etc
City of Biddeford and Saco usually hold a household hazardous waste day to collect items that some will dump into storm drains.
City of Portland is addressing the storm drain runoff issue
City watershed protection plan
Clambers protecting the digging areas; town officials noting the direct connection between storm drains and the harbor / ocean
Cleaning up Clark's Pond runoff in the Maine Mall area.
Cleanup of Capisic waterway.
'Do not dump - drains to Casco Bay' signs painted by storm drains
Drain inspector
Effort to prevent lawn care product from ending up in local terms and lakes.
Efforts that I noticed were mostly educational--how things people put on their lawns and gardens, as well as throw out, get into the water table
Environmental coalition and something from the water district
Environmental. Education Center has diff education programs
FOCB ad
Friends of Casco Bay effort to bring awareness to residential and parking lot run off issues.
Friends of Casco Bay public education effort, Casco Bay Estuary Project, City of Lewiston stormwater mgmt. efforts
Gorham Trails tried to prevent the State from spraying the old tracks.
Here!
Here! Lots of flyers promotions
I know they are very concerned but again I kind of hear things in the background
I read about efforts to clean the water near the Maine Mall / Clark's Pond area in South Portland
I read an online article recently discussing the need to clean up the garbage and debris in Westbrook's Presumpscot river.
Idex
Idexx does water testing
"Is that what you're doing?"
Label storm drains
Lakes environmental is pretty local
Long Creek watershed work; also Capisic Brook in Portland. Proposed land use controls to improve stream conditions.
Maine Mall area road reconstruction to control Clarks Pond pollution.
Maine Wastewater Control Association/ JETTC training/Maine Rural Water Association/

None, except federally mandated sewer separation which will not reduce pollution from stormwater
Not really until this race/festival
Nothing specific
Portland conservation group
Portland reducing excess sewer back bay
Portland Water District
Portland Water District educational efforts.
Putting in the stormwater catchment on Baxter Blvd
Same as before: fertilizer reduction
Same from before, from the water district on not putting chemicals in waterways, I think
See previous question - City of Portland ads...
Seen flyers about reducing pollution
Signs at storm drains
Some environmental group
Something from local water district
Something in Portland
South Portland Conservation Commission interest in improving water quality in the "so called" Trout Brook
Stickers on bulletin boards/building decorations
The people who did this race
The promotion for this race urban runoff
They've called a meeting but it hasn't occurred yet
This environmental coalition
This festival
This is an old problem controlled by the people with the GOLD (politicians) and their agendas don't include runoff.
TV
Urban Runoff 5K
Urban runoff 5K and flyers for it
urban run-off 5K, Casco bay thing
Urban runoff 5K, soil water conservation district
Urban streams
Works for environmental group

10c. Please briefly describe some of the actions you have taken as a result of this local effort to reduce stormwater pollution.

All organic don't use any house cleaners or fertilizer
Attendance at Conservation Commission joint meeting South Portland & Cape Elizabeth regarding water quality in Trout Brook
Awareness of what I do
Chemical free garden, lawn and fruit trees; properly dispose of oil and antifreeze

Chemical free lawn products, pick up litter on walks
Don't use any fertilizers or pesticides except for once to remove ants
Do not litter and make sure cars up to date so oil doesn't come off it, and pick up trash
Do not use fertilizer
Drain checker
I try to reduce
I use a mulching mower, no fertilizers and keep a good buffer between lawn and the stream on my property.
Kind of just being more aware
Minimize use of non-natural chemicals
More aware of what chemicals I use and not to litter
No fertilizer
No lawn fertilizers or other chemical treatments are used in our yard.
Not Really
Not throw away chemicals down drain
Organic fertilizer
Organic fertilizer/chemicals!
Organic garden
Own, to reduce stormwater
Playing children near runoff pipes at beach-make sure they don't go near
Recycle hazardous chemicals, cleanup my yard and clean up at the beach when I spend a day there.
Reduce
Stopped all use of herbicides and pesticides that are harmful
Stopped lawn treatment & cleaned up around storm drain.
Unhooked gutters from sewer system
Use of non phosphorus lawn fertilizer
Water quality monitoring on Highland lake
We are boaters and outdoors people. We understand the hydrologic cycle and use care in our lifestyle and limit non-organic products in our home. We properly dispose of paint and other waste materials.
We do not use any insecticides, herbicides or high phosphate fertilizers in or around our home and landscape.
We have a water well and septic system. Efforts to reduce pesticide etc. use.
We no longer use lime or fertilizer on our lawn, and we flushed the messes our dog made instead of throwing them into the woods behind our house (where there was a stream nearby)
We use a rain barrel, and use no chemicals or fertilizers on our lawns, and likewise do not sealcoat the driveway. We also organized neighbors to use an organic lawn care company.
Work with local engineering firms to develop better control systems for flow and treatment
Yardscaping to include aeration, top dressing and overseeding.

11a. Will you tell us a little bit about what have you heard (about local efforts to reduce the use of lawn chemicals)?

A print ad encouraging people not to fertilize their lawn and plant CLOVER.
Again I am not really involved but I have heard of products that can be used on baseball fields
Beyond pesticides (national)
Commercial, discussions
Don't remember
Education about the harmful aspects
Efforts to reduce or actually eliminate the use of herbicides on the Mountain Division Trail railroad tracks between Windham and Standish.
Film by Paul Tukey has been aired locally over the last few years. Also, Scarborough implemented (or tried to) organic lawn care on town properties.
FOCB ad
FOCB Bayscaping
Garden clubs
Has a pet so homeowners association tells them not to use
I don't remember the details. I don't watch a lot of TV but do try to reduce chemical usage in my home because of my pets.
I got a flyer in the mail to reduce fertilizer use
I have heard that lots of chemicals can be bad.
I may have read an article about it -- a recommendation in Scarborough, perhaps in the local Community Leader newspaper.
I stated it above
I think it was the " extension" that was telling people to mulching instead of using fertilizer
Just within my community we try to not use them
Kennebunk attempt to prohibit use of lawn chemicals and failure to adopt this measure
Lawn chemicals wash into the storm drains and pollute our waterways
Letters to the editor in newspaper.
Local town effort to cut back
Neighborhood fertilizer reduction
Neighbors reducing
New formulas sold at stores to reduce chemicals
Newspaper articles about towns trying to ban lawn chemicals - weed and insect killers.
None?
Nothing specific
Nothing specific
Only that they are a contribution factor
Organic best
Radio?
Reduce and go organic if possible
Reduce nitrogen and phosphorus

Same as above, flyer about not using lawn chemicals
Same as before: fertilizer reduction
Saw duck ad much more than a yr ago
Scarborough had plans to discontinue the use of lawn chemicals on public property in town
See previous comments...
Self induced
Several towns have attempted to pass ordinances to do what is right...some have been successful.
Signs on lawns advertising pesticide free
Soil and water conservation flyer: thinks them
Some towns are trying to ban public and private use of pesticides (and herbicides?)
Some towns in my area have considered ordinances to limit the use of lawn chemicals.
Television ads
There were articles in the newspapers about the damage to water the chemicals could do.
Use organic lawn care products whenever possible
We did not change because we have never used any lawn chemicals or fertilizers. (without encouragement)
Wish I had/there were more

11c. Please briefly describe some of the actions you have taken as a result of this local effort to reduce the use of lawn chemicals.

Already did
Altered lawn care
Does not use
Don't use at all
Don't use because I have small children and pets
Don't use them
Don't use any lawn chemicals, weed killers, etc...
Have asked company that fertilizers my lawn to use organic chemicals
I do not now, nor have I ever, used lawn chemicals.
I do not use any chemicals on my lawn! I encourage those who I know that use chemicals on their lawns to cease the practice.
I had a truck load of mulch from Benson's Farm put on my lawn.
I have a friend who makes her own laundry detergent and I have been using it for my laundry needs. I have an ant problem in my yard. I went online to find a natural solution. I used cornmeal sprinkled on the ant hills. It seemed to work but I need to do another treatment.
I have chosen to not spray for mosquitoes and to not purchase any lawn treatments from Lucas Tree this year.
I have owned a home for 4 years now and have never used a chemical on my lawn other than this year (grubs). I am not really about putting chemicals on something.
I never use fertilizer and take proper care of lawn

I now do not use chemicals, only organic/natural aids.
I planted CLOVER to replace bare patches, but Clover is hard to find and expensive.
I use no lawn fertilizer at all
Just reduced usage.
Lawn aeration, top dressing with compost, over seeding
Less lawn fertilizer
NO chemicals on our lawn
No fertilizer used last year
No fertilizers and no pesticide
No longer use chemicals on my lawn, all organic
Not using pollutants myself
Now use non phosphorus fertilizer
Personal efforts only...reduction of fertilizers on my lawn and using natural compost materials in the garden
Reduce fertilizer. Use
Reduced my own use
See previous questions...
Stopped lawn treatment by a treatment company.
Stopped -needs to be better info on treating for pests
Stopped using non-natural weed killers
Using organic
We didn't use much for chemicals on our lawn, but we stopped even that. Again, we also stopped throwing what our dog did on the lawn into the woods behind our house.
We live in a development where all lawncare and plowing is provided by contractors. We and six neighbors hired Casco Bay Safelawns, which implements Paul Tukey's approach, for lawncare. But some houses sold, and others didn't like the dandelions, and the mowing and plowing side of the service contract was not as good as existing service. Next year only two houses will continue with the organic approach.

11d. Comments from intercept survey folks about actions they've taken at their residences, but not as a result of local efforts.

But I don't use fertilizer
Do not use chemicals anyway
It is and has been in my awareness for many years. I don't know, or don't remember, how much "local efforts" have had an impact.
Organic only fertilizer, if used at all

16j. Other Information Sources

All places that have info!
Ask neighbors what they do/use
Books, magazines, organic catalogues
Maine DEP

Maybe local organizations
MOFGA
Paul Turkey - organic care
TV, family, friends
Urban runoff, SM waste water coalition
Would probably check with the City of South Portland as they seem to be environmentally conscious.

17. Thinking about rivers and streams in the area, are there specific rivers or streams that are especially important to you to protect?

Aibeusus River
All
All
All
All local waters are important to me, especially where drinking supplies come from
All of Casco Bay watershed.
All of Maine's waterways
All of them
All of them! I am a former biology teacher who is an environmentalist. Even have environment-safe septic system
All of them.
All rivers and waterways are important throughout the state
All water probably?
All water ways are important to protect in my opinion
All waterways important equally
All waterways in Southern Maine/Portland area. The bays especially.
Androscoggin
Androscoggin, Merrymeeting Bay, Royal River, Mill Stream (Fpt.)
Back Bay
Back Bay
Back Bay
Back Bay
Back Bay Maybe
Back Bay, very concerned so much trash around it
Back Cove
Back Cove
Back Cove
Back cove is right in my backyard and needs some clean up!
Back Cove, all coastlines
Backbay
Backbay Houseekurt

Backbay, Casco Bay, the ocean at Old Orchard
Bays especially that probably retain trash, etc
Beaches
Beaches
Beaches
Beaches
Beaches-always a lot of trash
Can't think of any
Can't think on any specifically
Capisic Brook to Fore River, Presumpscot River
Capisic pond
Capisic watershed is near my property.
Capisic, I've heard a lot about
Casco Bay
Casco Bay
Casco Bay
Casco Bay
Casco Bay, all tributary and smaller streams, any water with urbanization around it
Casco Bay, bodies of water surrounded by a lot of people
Casco bay, I think needs attention
Casco Bay, local ponds seem pretty polluted in and around Portland especially
Casco Bay, Presumpscot
Casco Bay, Sebago Lake
Casco Bay, Sebago Lake, Fore River.
Clark Pond, Back Cove
Collins brook, Royal River
Concerned about all waterways here and beyond just our area too.
Depends on your agenda regarding the word protect
Don't know
Don't know
Don't know
East end beach area in Portland, Presumpscot River, Back Cove
Everything is connected so all water in the state!
Everything locally
Florida Lake and Collins Brook
Fore River
Fore River
Fore river, trout brook (South Portland)
Former creeks in Deering Center, Back Cove
Goose fare Brook
Here

I don't think we should focus on one each is important
I live near the Scarborough Marsh and Eastern Trail. I want to protect the waterways all around the area, as well as in Portland.
I think the rivers/streams around me are very well monitored & protected
I would hope that all rivers and streams in my area are clean.
IDK, the Ocean
I'm not sure
In general, but concerned about
Kennebec, Mesalonski
Local stream by house
Long Creek, Trout Brook
Maine Beaches/oceans
Major rivers that pick up a lot of pollution
Maquoit Bay, Back Cove (Portland), All waterways
Most of them
No
No
No
None
None can think of
Nonesuch River, Scarborough Marsh
Nonesuch river, spur wink river, Scarborough river
Nonesuch River/Stroudwater River, which runs close to our home and contributes to the aquifer where we get our water.
Nope
Nope
Nope
Nope
Nope, none in particular
Nope-gross
Not a specific one
Not one in particular
Not really
Not really
Not really
Not sure
Not sure
Not sure if there is only one, I think a lot of them are important
Not that can think of
Old Orchard Beach
Old Orchard Beach and the Backbay
Penobscot

Presumpscot
Presumpscot
Presumpscot and Pleasant Rivers
Presumpscot River
Presumpscot River
Presumpscot River
Presumpscot River, rivers in rural=less attention
Presumpscot, Back Bay
Presumpscot, Kennebec, Backcave, all waters
Probably all the rivers
Royal River, Presumpscot, Androscoggin, Cousins,
Sabrina's Brook is the closest to me and that would be good to keep clan - but having some deterrent to stop the breeding of mosquitoes would be good.
Saco River
Saco river water shed
Saco River, Goosefare Brook
Saco river, Sebago lake, long lake, ponds in the area
Scarborough marsh land and our beaches and Casco bay
Scarborough Marsh, Casco Bay, Nonesuch River
Sebago
Sebago and Casco Bay
Sebago and Saco river
Sebago Lake
Sebago Lake
Sebago Lake
Sebago Lake
Sebago Lake, Little River
Sebago-we get our water from there (I think) and I hope it's clean
Specifically not just one but this type of survey does make you stop and think about things from a different perspective. They all need to be a concern.
Spur wink Marsh and its tributaries
Spurwink
Spurwink River, Presumpscot River, Saco River, Stroudwater River, Barberry Creek S. Portland, Trout Brook of Cape Elizabeth & South Portland
Spurwink, Libby, Nonesuch, Scarborough rivers

Thatcher Brook and the Saco River
The back bay, Casco Bay, Old Orchard Beach
The Beach
The beaches and the Backbay
the beaches-old orchard
The Ocean
The Presumpscot River in Westbrook.
The Saco River
The Saco River and Sebago Lake
The smaller rivers because the bigger waterways are already focused on where I think smaller ones need more attention
The tourist places so like beaches and Sebago
There is a natural spring the flows in the back of our residence perhaps 200 feet away. Runoff may reach this source.
There is a stream that runs into the ocean and the Presumpscot River in Falmouth
They are all important each estuary
Thomas Pond, Raymond. Too much build-up (new construction) with private septic systems poorly maintained.
Trout Brook & Long Creek
Waterways don't look like they smell good if that's any indication
Wilcox pond, West Brook, Saco River.
Yes, the Presumpscot River which is one of the long boundaries of my property.

Appendix B – Surveys

Intercept Survey: ISWG NPS Communications Survey- 2013

NOTE TO INTERVIEWER: READ ALL LOWERCASE AND BOLD WORDS IN THE QUESTIONS TO THE RESPONDENT. DO NOT READ WORDS IN UPPER CASE.

Hi, my name is XX, and I am a graduate student at the University of Maine. I am doing a study on people’s perceptions of water quality and stormwater; are you willing to take a few minutes to take a survey? It should take no longer than 5-7 minutes. Your responses that I write down will be entered into a computer later, but your name will not be attached to them in any way. Your participation is voluntary and you may stop at any time and skip any of the questions. Are you willing to participate? Thank you!

IF THEY ASK YOU WHAT THE SURVEY IS ABOUT SPECIFICALLY, YOU CAN SAY STORM WATER POLLUTION. IF THEY ASK, YOU CAN ALSO LET THEM KNOW THAT YOU’RE WORKING WITH THE INTERLOCAL STORMWATER GROUP.

1. First, do you live in one of the following communities? VERIFY THEY LIVE IN ONE OF THE COMMUNITIES ON THE MUNICIPALITY LIST

- 1 YES
- 0 NO, THANK RESPONDENT AND END INTERVIEW
- 12 DON'T KNOW/REFUSED, THANK RESPONDENT AND END INTERVIEW

2. Are you a full or part-time resident of that community?

- 1 YES, FULL-TIME
- 2 YES, PART-TIME
- 12 DON'T KNOW/REFUSED

3. How important is the quality of the waterways in the Portland area to you? READ SCALED RESPONSES ONLY

4	3	2	1	12
Very Important	Somewhat Important	Not very Important	Not at all Important	DON'T KNOW/ REFUSED TO ANSWER

4. How concerned are you with the waterways in the Portland area? READ SCALED RESPONSES ONLY

4	3	2	1	12
Very Concerned	Somewhat Concerned	Not very concerned	Not at all concerned	DON'T KNOW/ REFUSED TO ANSWER

5. Polluted stormwater runoff refers to pollution that is carried into rivers and streams, lakes, and the ocean by rain or melted snow. What types of pollution do you think are being carried into rivers, streams, lakes and the ocean by stormwater runoff?

RECORD VERBATIM IN BOX BELOW.

PROBE. TRY TO GET THREE OR MORE.
 AFTER FIRST AND SECOND RESPONSE ASK:
Any others?

6. How much of an impact would you say stormwater runoff has on the quality of the waterways in the Portland area? READ SCALED RESPONSES ONLY

4	3	2	1	12
A Major Impact	Somewhat of an impact	Not much of an impact	No impact at all	DON'T KNOW/ REFUSED TO ANSWER

7. How uninterested or interested are you in personally taking action to reduce pollution from stormwater runoff? READ SCALED RESPONSES ONLY

4	3	2	1	12
Very Interested	Somewhat Interested	Somewhat Uninterested	Very Uninterested	DON'T KNOW/ REFUSED TO ANSWER

Now we would like to ask you about specific efforts taking place in your area and in Maine over the past year [ANY TIME SINCE SPRING/SUMMER 2012].

8. Have you seen, heard, or read any advertisements regarding water pollution over the past year? DO NOT READ RESPONSES

- 1 YES
- 0 NO (GO TO Q9)
- 12 DON'T KNOW/REFUSED TO ANSWER (GO TO Q9)

8a. Will you describe the advertisement that you saw regarding water pollution, including what you felt it was saying? RECORD VERBATIM IN BOX BELOW

9. Over the past year, do you recall seeing an advertisement about stormwater pollution that featured rubber ducks accumulating and flowing into rivers and the ocean?

DO NOT READ RESPONSES

- 1 YES
- 0 NO – (GO TO Q10)
- 12 DON'T KNOW/REFUSED TO ANSWER (GO TO Q10)

9a. Can you tell us about that advertisement, such as what you felt it was saying?
RECORD VERBATIM IN BOX BELOW. PROBE FOR MESSAGE MEANING

10. Over the past year, have you heard of any efforts by local organizations to reduce pollution from stormwater runoff? DO NOT READ RESPONSES. RECORD "YES" COMMENTS IN BOX.

- 1 YES
- 0 NO (GO TO Q11)
- 12 DON'T KNOW/ REFUSED (GO TO Q11)

10. IF YES, tell us a little bit about what have you heard?

10a.

10b. Have you taken any specific actions as a result of the local efforts to reduce stormwater pollution?

- 1 YES
- 0 NO
- 12 DON'T KNOW/REFUSED

10c. Please briefly describe some of the actions you have taken as a result of this local effort to reduce stormwater pollution.

10c.

11. Over the past year, have you heard of local efforts to encourage residents to reduce their use of lawn chemicals? DO NOT READ RESPONSES. RECORD "YES" COMMENTS IN BOX.

- 1 YES
- 0 NO (**GO TO Q12**)
- 12 DON'T KNOW/REFUSED (**GO TO Q12**)

11a. IF YES, tell us a little bit about what have you heard?

11a.

11b. Have you taken any specific actions as a result of this local effort to reduce the use of lawn chemicals? For example, have you changed how you use lawn chemicals or changed how you maintain your lawn?

- 1 YES
- 0 NO
- 12 DON'T KNOW /REFUSED

11c. IF YES, Please briefly describe some of the actions you have taken as a result of this local effort to reduce the use of lawn chemicals.

11c

IF PEOPLE SAY THEY TAKE CERTAIN ACTIONS AT THEIR HOUSES, BUT NOT AS A RESULT OF LOCAL EFFORTS, WRITE IN BOX BELOW.

11d

We're almost done. We just have a few more questions.

12. At your residence, do you use lawn chemicals, such as fertilizers, and weed and bug killers?

- 1 YES
- 0 NO (**GO TO Q13**)
- 12 DON'T KNOW /REFUSED (**GO TO Q13**)

12a. IF YES, approximately how many times a year do you apply lawn chemicals?

- 1 1-2
- 2
- 3 3-4
- 4 5+
- 12 DON'T KNOW /REFUSED

13. At your residence, do you apply salt-based products on your walkways and/or driveways to deal with snow and ice?

- 1 YES
- 0 NO
- 12 DON'T KNOW /REFUSED

14. Now I would like to ask you about the likelihood that you will take a specific action. For each of the following actions please tell me on a scale of 1 to 5, where 5 is very likely and 1 is not at all likely. READ THE SCALE SLOWLY.

READ SCALED RESPONSES ONLY. IF QUESTION DOES NOT APPLY, FOR EXAMPLE: NO YARD, NO DOG, CHECK DOES NOT APPLY. IF RESPONDENT SAYS "ALREADY DO", CHECK ALREADY DO OR DONE

How likely are you to:

14a. Reduce the amount of lawn chemicals, such as fertilizers, and weed and bug killers that you use. CIRCLE DOES NOT APPLY IF ANSWERED "NO" TO Q14

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	12

14b. Seed, plant or mulch bare areas in your yard.

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	12

14c. Plant trees, shrubs and ground cover to reduce the size of your lawn.

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	12

14d. When in public places, pick up your pet's waste and throw it in the trash.

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	12

14e. Mow your lawn no shorter than 2.5 - 3 inches.

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	12

14f. Use phosphorous free fertilizer on your lawn.

<i>Very Likely</i>				<i>Not at all Likely</i>	<i>ALREADY DO OR DONE</i>	<i>DOES NOT APPLY</i>	<i>DON'T KNOW/ REFUSE</i>
5	4	3	2	1	10	11	9

15. If you were looking for information on taking any of the lawn care actions mentioned in this survey, which of the following sources would you use to get that information? READ RESPONSES AND CHECK ALL THAT APPLY

- 1 Internet
- 2 Friend or family
- 3 Hardware store
- 4 Lawncare professional
- 5 Newspaper
- 6 Product label
- 7 University of Maine Cooperative Extension
- 8 Soil and Water Conservation District
- 9 OTHER What? _____
- 12 DON'T KNOW/REFUSED

16. How much do you disagree or agree that the actions you take at your residence to maintain your lawn positively or negatively impact the water quality of waterways in the Portland area?

(Note: this question needs rewording in future surveys.)

- 1 Strongly disagree
- 2 Somewhat disagree
- 3 Neither disagree nor agree
- 4 Somewhat agree
- 5 Strongly agree

17. Thinking about rivers and streams in the area, are there specific rivers or streams that are especially important to you to protect? WRITE ANSWERS VERBATIM IN THE BOX BELOW.

The following information is used just to help us get a sense of who is responding to the survey. If you don't feel comfortable answering the question, that's fine.

18. What is the zip code of the town you live in, in Maine? _____

19. Can you stop me when I reach your age group? READ EACH AGE CATEGORY. IF THEY DO NOT APPEAR TO BE 18, PLEASE VERIFY THAT THEY ARE 18.

- 1 18-24
- 2 25-34
- 3 35-44
- 4 45-54
- 5 55-64
- 6 65 years of age and over
- 12 Prefer not to answer

20. Approximately, how many years have you lived at your current residence?

- 1 Less than five years
- 2 5-9 years
- 3 10-19 years
- 4 20 or more years
- 12 Prefer not to answer

21. RECORD GENDER BY OBSERVATION

- 0 MALE
- 1 FEMALE
- Prefer not to answer

Online Survey:**Portland Area Water Quality and Stormwater Survey 2013**

You have been asked to participate in a research study being conducted by researchers at the University of Maine Orono who are affiliated with Maine's Sustainability Solutions Initiative (umaine.edu/sustainability_solutions). This is a collaborative study with the Bangor Area Stormwater Group, the Interlocal Stormwater Working Group, the Cities of Auburn and Lewiston, and the Town of Sabattus. The purpose of the research is to study residents' awareness of recent efforts to clean up local streams, lakes and rivers, residents' perceptions of stormwater, and residents' lawn care practices. Your participation in this study will help municipalities plan future activities aimed at keeping Maine's water resources clean and safe and contribute to research on environmental behavior.

This study is being conducted by personnel from the University of Maine Orono, including Karen Hutchins, doctoral student in the Department of Communication and Journalism, Lauren Thornbrough, master's student in the Department of Communication and Journalism, and Drs. Laura Lindenfeld and Linda Silka from the Margaret Chase Smith Policy Center.

What will you be asked to do? If you decide to participate, the following survey will take approximately 10-15 minutes to complete. You will be asked to answer questions about water quality and stormwater and your lawn care practices.

Risks: Except for your time and inconvenience, there are no foreseeable risks to you in participating in this study.

Benefits: While there are no direct benefits to you from participating, findings from this survey will strengthen local municipality efforts to protect and improve the water quality of local water bodies. Improving water quality in the area should have environmental, social, and economic benefits.

Confidentiality: Your responses will be treated confidentially. No information that might directly identify you will be presented in any research reports or communications. You have been assigned a unique code that is linked to your responses and your household. The code was assigned in order to protect your identity in the dataset and to ensure that only one person from each household completes the survey. The key linking your name to the access code will be stored separately from your survey responses and a software program will provide additional security to keep your information private. Although your responses will be kept potentially forever, the key linking your name and the access code will be kept for up to ten years for data analysis, at which time it will be destroyed.

Voluntary: Participation is voluntary. If you choose to take part in the study, you may stop at any time or skip any items in the survey. Completion of the survey implies consent to participate.

Contact information: If you have any questions, comments, or concerns about the study, please contact Karen Hutchins by mail: 5784 York Village, Building #4, Margaret Chase Smith Policy Center, University of Maine, Orono, ME 04469, or e-mail: karen.hutchins@umit.maine.edu. You may also reach her faculty advisor, Laura Lindenfeld, via: phone (207) 581-3850; mail: 5784 York Village, Building #4, Margaret Chase Smith Policy Center, University of Maine, Orono, ME 04469, or e-mail: laura.lindenfeld@umit.maine.edu. If you have any questions about your rights as a research participant, please call or write: Gayle Jones, Assistant to the University of Maine's Protection of Human Subjects Review Board, at: (207) 581-1498 or gayle.jones@umit.maine.edu.

Survey Code: In this section, we request that you enter the survey code listed on the survey invitation letter. The code was assigned in order to protect your identity in the dataset and maintain the confidentiality of your responses. The key linking your name to the survey code will be stored separately from your survey responses and a software program will provide additional security to keep your information private.

Please write in the survey code listed on the survey invitation letter: _____

Section I. Perceptions

In the following section, you will be asked a series of questions on your perceptions of water quality in the greater Portland area and water pollution.

1. How important is the quality of the waterways in the greater Portland area to you?

- Very Important
- Somewhat important
- Not very important
- Not at all important
- Don't know

2. How concerned are you with the waterways in the greater Portland area?

- Very concerned
- Somewhat concerned
- Not very concerned
- Not at all concerned
- Don't know

3. Polluted stormwater runoff refers to pollution that is carried into rivers, streams, lakes and the ocean by rain or melted snow. What types of pollution do you of when you think of pollution being carried into river, streams, lakes, and the ocean by stormwater runoff? (Please write your response below).

4. How much of an impact would you say stormwater runoff has on the quality of the waterways in the greater Portland area?

- A major impact
- Somewhat of an impact
- Not much of an impact
- No impact at all
- Don't know

5. How interested or uninterested are you in personally taking action to reduce pollution from stormwater runoff?

- Very interested
- Somewhat interested
- Somewhat uninterested
- Very uninterested
- Don't know

Section II. Outreach Activities

In the following section, you will be asked a series of questions about specific efforts taking place in your area and in Maine over the past year.

6. Have you seen, heard, or read any advertisements regarding water pollution over the past year?

- Yes
- No
- Don't know

6a. If yes, please briefly describe below the advertisement(s) that you saw regarding water pollution, including what you felt it was saying.

7. Over the past year, do you recall seeing an advertisement about stormwater pollution that featured rubber ducks accumulating and flowing into rivers and the ocean?

- Yes
- No
- Don't know

7a. If yes, please briefly describe below the advertisement that you saw about stormwater pollution that featured rubber ducks accumulating and flowing into rivers and the ocean, including what you felt it was saying.

8. Over the past year, have you heard of any efforts by local organizations to reduce pollution from stormwater runoff?

- Yes
- No
- Don't know

If you answered No or Don't know, skip to Q8

8a. If yes, please briefly describe below what you have heard about the efforts by local organizations to reduce pollution from stormwater runoff.

8b. If yes to Q8, have you taken any specific actions as a result of the local efforts to reduce pollution from stormwater runoff?

- Yes
- No
- Don't know

8c. If yes to Q8b, please briefly describe below some of the actions you have taken as a result of this local effort to reduce stormwater pollution.

9. Over the past year, have you heard of local efforts to encourage residents to reduce their use of lawn chemicals?

- Yes
- No
- Don't know

If you answered No or Don't know, skip to Q10

9a. Please briefly describe what you have heard about the local efforts to encourage residents to reduce their use of lawn chemicals.

9b. Have you taken any specific actions as a result of local efforts to encourage residents to reduce their use of lawn chemicals. For example, have you changed how you use lawn chemicals or changed how you maintain your lawn?

- Yes
- No
- Don't know

9c. If yes to Q9b, please briefly describe below some of the actions you have taken as a result of this local effort.

Section III. Lawn Care Practices

In the following section, you will be asked a series of questions about lawn care practices at your residence.

10. At your residence, do you use lawn chemicals, such as fertilizers, and weed and bug killers?

- No
- Yes
- Don't know

10a. If yes, approximately how many times a year do you apply lawn chemicals, such as fertilizers, and weed and bug killers?

- 1-2 times per year
- 3-4 times per year
- 5 or more times per year
- Don't know

11. At your residence, do you apply salt-based products on your walkways and/or driveways to deal with snow and ice?

- Yes
- No
- Don't know

12. Please indicate the likelihood that you will take the following actions at your residence or in public places (Select one answer for each action):

	Very likely	Moderately likely	Somewhat likely	Slightly likely	Not at all likely	Already am doing	Not applicable	Don't know
Reduce the amount of lawn chemicals, such as fertilizers, and weed and bug killers, that you use	<input type="radio"/>							
Seed, plant, or mulch bare areas in your yard	<input type="radio"/>							
Plant trees, shrubs, and ground cover to reduce the size of your lawn	<input type="radio"/>							
Mow your lawn no shorter than 2.5-3 inches	<input type="radio"/>							
Use phosphorus-free fertilizer on your lawn	<input type="radio"/>							
When in public places, pick up your pet's waste and throw it in the trash	<input type="radio"/>							
When in public places, throw your cigarette butts in the disposal bin or trash	<input type="radio"/>							

13. Indicate how much do you agree or disagree with the following statement: "My neighbors use lawn chemicals, such as fertilizers, and weed and bug killers."

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree
- Don't know

14. If you were looking for information on any of the lawn care actions mentioned in this survey (e.g. mowing your lawn no shorter than 2.5-3 inches or reducing the use of lawn chemicals) , please indicate which of the following sources you would use to get that information (Please check all that apply).

- Internet
- Newspaper
- Don't know
- Friend or Family
- Lawn care professional
- Hardware store
- Product label
- University of Maine Cooperative Extension
- Soil and Water Conservation District
- Other (Please specify): _____

15. How much do you disagree or agree that the actions you take at your residence to maintain your lawn positively or negatively impact the water quality of waterways in the greater Portland area?

- Strongly disagree
- Somewhat disagree
- Neither disagree nor agree
- Somewhat agree
- Strongly agree
- Don't know

16. Thinking about rivers and streams in your local area, are there specific rivers or streams that are especially important to you to protect? (Please write your response below).

Section IV. Demographic Information

In the following section, you will be asked a series of questions about your demographic information. Please remember that individual responses will not be identified in reports summarizing survey results.

17. Are you a full- or part-time resident in your greater Portland area municipality?

- Full-time resident
- Part-time resident
- Don't know
- Prefer not to answer

18. How many years have you lived at your greater Portland area residence?

- Less than five years
- 5-9 years
- 10-19 years
- 20 or more years
- Prefer not to answer

19. What is your age group?

- 18-24
- 25-34 years
- 35-44 years
- 45-54 years
- 55-64 years
- 65 years of age and over
- Prefer not to answer

20. What is your gender?

- Male
- Female
- Prefer not to answer

21. What is your level of education?

- Less than high school
- High school
- Some college
- Associate's degree
- Bachelor's degree
- Graduate degree(s)
- Prefer not to answer

Appendix C

Public Participation Report (ISWG)

APPENDIX C: Permit Year 5 Summary of Minimum Control Measure 2

Urban Runoff & Green Neighbor Family Fest

The second annual *Urban Runoff* 5K race and walk and the *Green Neighbor Family Fest* were held on April 20, 2013. The goal of these events was to raise awareness of stormwater and funds for ISWG's school education program. With approval from Maine DEP, race and festival served as the Public Involvement and Participation event for all ISWG communities.

By all accounts, this second annual event was a huge success. A total of 589 runners and walkers registered for the race, and many local businesses supported the race through sponsorships, in-kind donations and employee participation as race participants and volunteers. Local media outlets advertised the events, including radio sponsorship during the month of April by 98.9 WCLZ. Online advertising through Facebook and Active.com was also used to promote the race and cause.

Anecdotes as well as a post-race survey completed by race participants demonstrate the success of the race's planning and implementation. Many participants particularly enjoyed the course, which uniquely features both suburban neighborhood streets as well as about a mile long section of trail in an urban area of Portland. Many survey respondents indicated the cause of the race, clean water education, was a major reason why they chose to participate.

To meet the goal of increasing stormwater awareness, CCSWCD designed and placed signs along the course focused on runoff, pollution, and water movement. These messages were also included on the race website, which at its peak received over 2,000 hits on one day, with an average of 300 hits per day. Stormwater awareness messages were also included in the six eblasts that were sent to all registered participants, sponsors, and partners.

The 2013 post-race survey included questions related to awareness of stormwater issues. More than 200 people responded to the post-race survey. Ninety percent of those who responded stated that stormwater runoff impacts local waters in some way, with 72% said that stormwater runoff has a major impact on the cleanliness of Maine's waterways, and 18% said it had somewhat of an impact. In addition, many respondents were able to identify common water pollutants, including: lawn care products (56%); oil (52%); pet waste (38%); trash (36%); road salt (20%); soil (17%); cigarette butts (9%); metals (9%); car exhaust (6%); and bacteria (3%).

The *Green Neighbor Family Fest* was held after the race on the front lawn of Deering High School. The event ran for three and a half hours and was attended by approximately 750 people. Scheduled events included the awards ceremony and three child-focused, environmentally-themed live performances, including music, theater and magic. A total of 17 displays were set up by local nonprofit and governmental organizations, and businesses to provide hands-on, educational activities for children. These activities included water quality testing, "poo bag" toss (about proper disposal of pet waste), stormwater maze, and many more. Children also took part in face painting.

The festival was also a great success. Children were engaged, and parents provided feedback that the activities were not only fun, but also educational for both parents and children.

Plans are underway to host the third annual *Urban Runoff* 5K and *Green Neighbor Family Fest* on Saturday, April 26 2014.

Appendix D

Chapter 242 Stormwater Management – Stormwater Discharge Ordinance

Town of Cumberland, ME
Thursday, August 29, 2013

Chapter 242. STORMWATER MANAGEMENT

[HISTORY: Adopted by the Town Council of the Town of Cumberland as indicated in article histories. Amendments noted where applicable.]

GENERAL REFERENCES

Floodplain management — See Ch. 105.

Shoreland zoning — See Ch. 226.

Site plan review — See Ch. 229.

Subdivision of land — See Ch. 250.

Zoning — See Ch. 315.

Article I. Stormwater Discharge

[Adopted 7-27-2009]

§ 242-1. Purpose.

- A. The purpose of this article is to provide for the health, safety, and general welfare of the citizens of the Town of Cumberland through the regulation of nonstormwater discharges to the Town's storm drainage system as required by federal and state law.
- B. This article establishes methods for controlling the introduction of pollutants into the Town's storm drainage system in order to comply with requirements of the Federal Clean Water Act and state law.

§ 242-2. Objectives.

The objectives of this article are to:

- A. Prohibit unpermitted or unallowed stormwater discharges to the storm drainage system; and
- B. Set forth the legal authority and procedures to carry out all inspection, monitoring and enforcement activities necessary to ensure compliance with this article.

§ 242-3. Applicability.

This article shall apply to all persons discharging stormwater and/or nonstormwater discharges from any premises into the storm drainage system located within the urban area as depicted in Attachment A. *Editor's Note: Attachment A is on file in the Town Clerk's office.*

§ 242-4. Administration.

The Town Manager or his/her designee is the Code Enforcement Officer who shall administer, implement, and enforce the provisions of this article.

§ 242-5. Definitions.

For the purposes of this article, the terms listed below are defined as follows:

CLEAN WATER ACT

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.) and any subsequent amendments thereto.

DISCHARGE

Any spilling, leaking, pumping, pouring, emptying, dumping, disposing or other addition of pollutants to waters of the state. "Direct discharge" or "point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft from which pollutants are or may be discharged.

EXEMPT PERSON OR DISCHARGE

Any person who is subject to a multi-sector general permit for industrial activities, a general permit for construction activity, a general permit for the discharge of stormwater from the Maine Department of Transportation and the Maine Turnpike Authority municipal separate storm sewer systems, or a general permit for the discharge of stormwater from state or federally owned authority municipal separate storm sewer system facilities, and any nonstormwater discharge permitted under a NPDES permit, waiver, or waste discharge license or order issued to the discharger and administered under the authority of the United States Environmental Protection Agency (EPA) or the Maine Department of Environmental Protection (DEP).

INDUSTRIAL ACTIVITY

Activity or activities subject to NPDES industrial permits as defined in 40 CFR 122.26(b)(14).

MUNICIPAL SEPARATE STORM SEWER SYSTEM or MS4

Conveyances for stormwater, including but not limited to roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels or storm drains (other than publicly owned treatment works and combined sewers), owned or operated by any municipality, town, sewer or sewage district, fire district, state agency or federal agency or other public entity that discharge directly to surface waters of the state.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER DISCHARGE PERMIT

A permit issued by the EPA or by the DEP that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

NONSTORMWATER DISCHARGE

Any discharge to an MS4 that is not composed entirely of stormwater.

PERSON

Any individual, firm, corporation, municipality, town, quasi-municipal corporation, state agency or federal agency or other legal entity which creates, initiates, originates or maintains a discharge of stormwater or a nonstormwater discharge.

POLLUTANT

Dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or by-products, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

PREMISES

Any building, lot, parcel of land, or portion of land, whether improved or unimproved, including adjacent

sidewalks and parking strips, located within the Town from which discharges into the storm drainage system are or may be created, initiated, originated or maintained.

REGULATED SMALL MS4

Any small MS4 regulated by the State of Maine general permit for the discharge of stormwater from small municipal separate storm sewer systems (general permit), including all those located partially or entirely within an urbanized area (UA) and those additional small MS4s located outside a UA that as of the issuance of the general permit have been designated by the DEP as regulated small MS4s.

SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEM or SMALL MS4

Any MS4 that is not already covered by the Phase I MS4 Stormwater Program, including municipally owned or operated storm sewer systems, state or federally owned systems, such as colleges, universities, or prisons, Maine Department of Transportation and Maine Turnpike Authority road systems and facilities, and military bases and facilities.

STORM DRAINAGE SYSTEM

The Town's municipal separate storm sewer system, including the Town's regulated small MS4 and areas outside the Town's urbanized area that drain into the regulated small MS4.

STORMWATER

Any stormwater runoff, snowmelt runoff, and surface runoff and drainage.

TOWN

The Town of Cumberland.

URBANIZED AREA (UA)

The areas of the State of Maine so defined by the latest decennial census by the United States Bureau of the Census.

§ 242-6. General prohibition.

Except as allowed or exempted herein, no person shall create, initiate, originate or maintain a nonstormwater discharge to the storm drainage system. Such nonstormwater discharges are prohibited notwithstanding the fact that the Town may have approved the connections, drains or conveyances by which a person discharges unallowed nonstormwater discharges to the storm drainage system.

§ 242-7. Allowed nonstormwater discharges.

The creation, initiation, origination and maintenance of the following nonstormwater discharges to the storm drainage system is allowed:

- A. Landscape irrigation;
- B. Diverted stream flows;
- C. Rising groundwaters;
- D. Uncontaminated groundwater infiltration [as defined at 40 CFR 35.2005(20)];
- E. Uncontaminated pumped groundwater;
- F. Uncontaminated flows from foundation drains;
- G. Air-conditioning and compressor condensate;
- H. Irrigation water;

- I. Flows from uncontaminated springs;
- J. Uncontaminated water from crawl space pumps;
- K. Uncontaminated flows from footing drains;
- L. Lawn watering runoff;
- M. Flows from riparian habitats and wetlands;
- N. Residual street wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material has been removed and detergents are not used);
- O. Hydrant flushing and firefighting and firefighting training activity runoff;
- P. Waterline flushing and discharges from potable water sources;
- Q. Individual residential car washing;
- R. Dechlorinated swimming pool discharges;
- S. Discharges specified in writing by the Code Enforcement Officer as being necessary to protect public health and safety; and
- T. Dye testing, with verbal notification to the Code Enforcement Officer prior to the time of the test.

§ 242-8. Exempt person or discharge.

This article shall not apply to an exempt person or discharge, except that the Code Enforcement Officer may request from exempt persons and persons with exempt discharges copies of permits, notices of intent, licenses and orders from the EPA or DEP that authorize the discharge(s).

§ 242-9. Suspension of access to small MS4.

- A. The Code Enforcement Officer may, without prior notice, physically suspend discharge access to the storm drainage system to a person when such suspension is necessary to stop an actual or threatened nonstormwater discharge to the storm drainage system which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the storm drainage system, or which may cause the Town to violate the terms of its environmental permits. Such suspension may include, but is not limited to, blocking pipes, constructing dams or taking other measures, on public ways or public property, to physically block the discharge to prevent or minimize nonstormwater discharges to the storm drainage system.
- B. If the person fails to comply with a suspension order issued in an emergency, the Code Enforcement Officer may take such steps as deemed necessary to prevent or minimize damage to the storm drainage system or to minimize danger to persons; provided, however, that in taking such steps the Code Enforcement Officer may enter upon the premises that is the source of the actual or threatened nonstormwater discharge to the storm drainage system only with the consent of the premises' owner, occupant or agent.

§ 242-10. Right of entry; monitoring of discharges.

In order to determine compliance with this article, the Code Enforcement Officer may enter upon and inspect premises subject to this article at reasonable hours with the consent of the premises' owner, occupant or agent, to inspect the premises and connections thereon to the storm drainage system and to conduct monitoring, sampling and testing of the discharge to the storm drainage system.

§ 242-11. Enforcement.

It shall be unlawful for any person to violate any provision of or to fail to comply with any of the requirements of this article. Whenever the Code Enforcement Officer believes that a person has violated this article, the Code Enforcement Officer may enforce this article in accordance with 30-A M.R.S.A. § 4452.

§ 242-12. Notice of violation.

Whenever the Code Enforcement Officer believes that a person has violated this article, the Code Enforcement Officer may order compliance with this article by written notice of violation to that person indicating the nature of the violation and ordering the action necessary to correct it, including, without limitation:

- A. The elimination of nonstormwater discharges to the storm drainage system, including but not limited to disconnection of the premises from the MS4.
- B. The cessation of discharges, practices, or operations in violation of this article.
- C. At the person's expense, the abatement or remediation (in accordance with best management practices in DEP rules and regulations) of nonstormwater discharges to the storm drainage system and the restoration of any affected property and/or the payment of fines, of the Town's remediation costs and of the Town's reasonable administrative costs and attorney fees and costs. If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such abatement or restoration must be completed.

§ 242-13. Violations and penalties; injunctive relief.

Any person who violates this article shall be subject to fines, penalties and orders for injunctive relief and shall be responsible for the Town's attorney fees and costs, all in accordance with 30-A M.R.S.A. § 4452. Each day that such violation continues shall constitute a separate violation. Moreover, any person who violates this article also shall be responsible for any and all fines, penalties, damages and costs, including but not limited to attorney fees and costs, incurred by the Town for violation of federal and state environmental laws and regulations caused by or related to that person's violation of this article; this responsibility shall be in addition to any penalties, fines or injunctive relief imposed under this article.

§ 242-14. Consent agreement.

The Code Enforcement Officer may, with the approval of the municipal officers, enter into a written consent agreement with the violator to address timely abatement of the violation(s) of this article for the purposes of eliminating violations of this article and of recovering fines, costs and fees without court action.

§ 242-15. Appeal of notice of violation or suspension.

Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. I).

- A. Any person receiving a notice of violation or suspension notice may appeal the determination of the Code Enforcement Officer to the Board of Adjustment and Appeals. The notice of appeal must be received within 30 days from the date of receipt of the notice of violation.
- B. The Board of Adjustment and Appeals shall hold a hearing on the appeal within 30 days from the date of receipt of the notice of appeal. The Board of Adjustment and Appeals may affirm, reverse or modify the decision of the Code Enforcement Officer.

§ 242-16. Enforcement measures after notice and appeal; emergency situations.

- A. If the violation has not been corrected pursuant to the requirements set forth in the notice of violation or, in the event of an appeal to the Board of Adjustment and Appeals, within 45 days of a decision of the Board of Adjustment and Appeals affirming or modifying the Code Enforcement Officer's decision, then the Code Enforcement Officer may recommend to the municipal officers that the Town's Attorney file an enforcement action in a Maine court of competent jurisdiction under Rule 80K of the Maine Rules of Civil Procedure. *Editor's Note: Amended at time of adoption of Code (see Ch. 1, General Provisions, Art. 1).*
- B. Notwithstanding these requirements, in the event of an emergency situation that presents an immediate threat to public health, safety or welfare or that may result in damage to the Town's storm drainage system, the Town may seek injunctive relief at any time after learning of such emergency situation.

§ 242-17. Ultimate responsibility of discharger.

The standards set forth herein are minimum standards; therefore this article does not intend or imply that compliance by any person will ensure that there will be no contamination, pollution, or unauthorized discharge of pollutants into waters of the United States caused by said person. This article shall not create liability on the part of the Town, or any officer, agent or employee thereof, for any damages that result from any person's reliance on this article or any administrative decision lawfully made hereunder.

§ 242-18. Authority.

The Town of Cumberland enacts this article pursuant to 30-A M.R.S.A. § 3001 (municipal home rule ordinance authority), 38 M.R.S.A. § 413 (the Wastewater Discharge Law), 33 U.S.C. § 1251 et seq. (the Clean Water Act), and 40 CFR 122 [the United States Environmental Protection Agency's regulations governing the National Pollutant Discharge Elimination System (NPDES)]. The Maine Department of Environmental Protection, through its promulgation of the general permit for the discharge of stormwater from small municipal separate storm sewer systems, has listed the Town of Cumberland as having a regulated small municipal separate storm sewer system ("small MS4"); under this general permit, listing as a regulated small MS4 necessitates enactment of this article as part of the Town's stormwater management program.

Article II. Post-Construction Stormwater Management

[Adopted 9-14-2009]

§ 242-19. Purpose.

- A. The purpose of this article is to provide for the health, safety, and general welfare of the citizens of the Town of Cumberland through review and approval of post-construction stormwater management plans and monitoring and enforcement of compliance with such plans as required by federal and state law.
- B. This article establishes methods for post-construction stormwater management in order to comply with minimum control measure requirements of the Federal Clean Water Act, of federal regulations and of Maine's small municipal separate storm sewer systems general permit.

§ 242-20. Objectives.

The objectives of this article are to:

- A. Reduce the impact of post-construction discharge of stormwater on receiving waters; and
- B. Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through use of best management practices as promulgated by the Maine Department of Environmental Protection pursuant to its Chapter 500 and 502 rules and ensure that these management controls are properly maintained and pose no threat to public safety.

Appendix E

Dry Weather Outfall Inspection SOP

Town of Cumberland
Stormwater Program Management Plan
Illicit Discharge Detection and Elimination
Standard Operating Procedure
for
Dry Weather Outfall Inspection Program
Effective Date: April 7, 2009
Revision No.: Three
Last Revision Date: September 29, 2009

Purpose: The purpose of this Standard Operating Procedure (SOP) is to provide guidance, monitoring and corrective action as needed for the elimination of illicit discharges to Cumberland's storm drain system and ultimately the receiving waters in the Town as required by the Town's MS4 General Permit and Stormwater Program Management Plan.

Scope: This SOP applies in the performance of IDDE dry weather outfall inspection as required by Minimum Control Measure 3 Illicit Discharge Detection and Elimination, Best Management Practice (BMP) 3.3 of the Stormwater Program Management Plan.

References: Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine, Volume 1: Information for Program Managers; and Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine Volume 2: Standard Operating Procedures and Forms.

Responsible Parties:

- Overall program management: Assistant Town Manager
- Field inspections: Director of Public Services
- Tracking and record keeping: Public Works Secretary
- Review and follow up: Assistant Town Manager
- Corrective action: Director of Public Services
- Enforcement: Code Enforcement Officer

Inspection Schedule:

- Field inspection will be performed during periods of dry weather where no significant precipitation has occurred in the preceding 48 hours;
- Inspections will be performed during periods low flow where field inspections may be performed in a safe and efficient manner;
- Each outfall in the highest priority watershed will be inspected at least once in a permit cycle and more frequently as required by field conditions;
- By the end of the permit cycle, all outfalls in at least one sub-watershed of the second highest priority watershed.

Inspection Priority: Dry weather inspections will be scheduled and conducted in a prioritized basis and will target specific sub watersheds of the priority watershed based on the highest priority. The sub water shed priority is as follows:

Priority	Watershed ID	Description (See Delineation Maps)
1	PISC 3	Hedgerow Drive to Greely Road Area
2	PISC 1	Greely High School Area
3	PISC 2	Farwell Avenue to Hill Crest Drive Area
4	PISC 4	Meadow Lane to Catalpa Lane
5	PISC 5	Catalpa Lane to Maurice Way

Inspection Procedure:

- Inspections will be conducted in a safe manner and all required Personal Protective Equipment (PPE) will be used;
- Inspections will be performed as outlined in Section 2.1 and 2.2 of the Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine Volume 2: Standard Operating Procedures and Forms;
- Inspection will be recorded on the Standard Dry Weather Outfall Inspection Form, Page 2-9 of Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine Volume 2: Standard Operating Procedures and Forms;
- Digital photographs will be recorded and attached to each Inspection Form;
- Abnormal conditions, outfall damage, suspected illicit discharges and other issues will be noted in the Inspection Form and will reported to the Director of Public Services for remedial action as required;
- In the case where an illicit discharge is noted or suspected, an attempt will be made to locate the source of the illicit discharge and will be documented in the Inspection Form for future action;
- Completed Inspection forms will be forwarded to the Public Works Secretary for archiving;
- When possible, opportunistic inspections will be performed by field staff. Following an opportunistic inspection, an Inspection Form will be completed and archived as noted above.

Corrective Action: When a suspected illicit discharge is noted, either during the regular inspection procedure, while conducting an opportunistic inspection or when reported by a citizen or third party inspection, the Town will take corrective action that may include, but not be limited to, the following.

- The Director of Public Services and the Code Enforcement Officer will be notified of the potential illicit discharge;
- The source of the illicit discharge will be traced and a mitigation plan to eliminate the illicit discharge will be developed by the Town;
- The illicit discharge will be eliminate as soon as practical;
- The corrective action will be documented by the Director of Public Works and will be forwarded to the Public Works Secretary for archiving;
- Follow up inspections will be scheduled as required.

Record Keeping and Program Evaluation: All inspection forms, complaints, Notice of Violations, remedial actions and infrastructure upgrades will be tracked and archived by

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the Public Works Secretary in an appropriate three ring binder system. This system will include the following steps:

- Completed inspection reports and all other pertinent information will be forwarded to the Public Works Secretary for archiving in the binder;
- Inspections that indicated a possible illicit discharge will be flagged and forwarded to the Director of Public Services for the appropriate action;
- On at least an annual basis the inspection forms and related data will be reviewed by the Assistant Town Manager for accuracy and conformance to the SOP and the Stormwater Program Management Plan;
- On an annual basis the inspections shall be tabulated and will be included in the Town's Annual Report to the Maine DEP.

Appendix F

Municipal Employee Training

**Stormwater Awareness Training
Training Meeting Agenda
March 26, 2013
1:00 PM
Yarmouth Town Hall**

1. Introduction and Welcome

A. Steve Johnson / TOWN ENGINEER

B. Housekeeping Issues: Bathroom, Sign in TWO DIFFERENT SHEETS

C. HOW MANY FROM YARMOUTH HAVE HAD STORMWATER AWARENESS TRAINING?
D. THERE WILL BE A TEST OR TWO

2. Program Background for Storm water Management: Remember 1991? How about 2003?

A. 1991 Rules put in place to regulate impacts from storm water contact with fuels, chemicals, raw materials, fertilizers, pesticides, and wastes as well as dirt and soils for communities above 100,000 population. 2003 applied to communities less than 100,000.

B. General Permit for Discharge of Stormwater (MS4) / AND STORM WATER PLAN

(1) Stormwater Program Management Plan Public Education and Outreach

(2) Public Participation and Involvement

(3) Illicit Discharge Detection and Elimination

(4) Construction Site Runoff Control

(5) Post Construction Stormwater Management

(6) Pollution Prevention and Good House Keeping for Municipal Operations

(7) Training is Key Requirement of MCM 6

3. Municipal Stormwater Pollution Prevention

- A. What are BMP's ?
- B. What kind of municipal operations could impact stormwater quality?
- C. View Video
- D. Discuss Video
 - (1) What have you seen in our daily work that could impact stormwater runoff?
 - (2) Where are our spill kits?
 - (3) Have you ever seen indication of illicit discharges?
- E. Test then Break
- F. Go over test

4. Stormwater Pollution Prevention for Construction Sites

- A. Since 2003 sites 1 acre or more are required to be permitted
- B. Part of this permitting requires contractors to implement a BMP plan to minimize impacts
- C. Key is to install the proper BMP's then inspect and maintain them.
- D. Additionally training is critical for site staff
- E. View Video
- F. Discuss Video
- G. Test
- H. Go over test

5. Questions

6. Adjourn