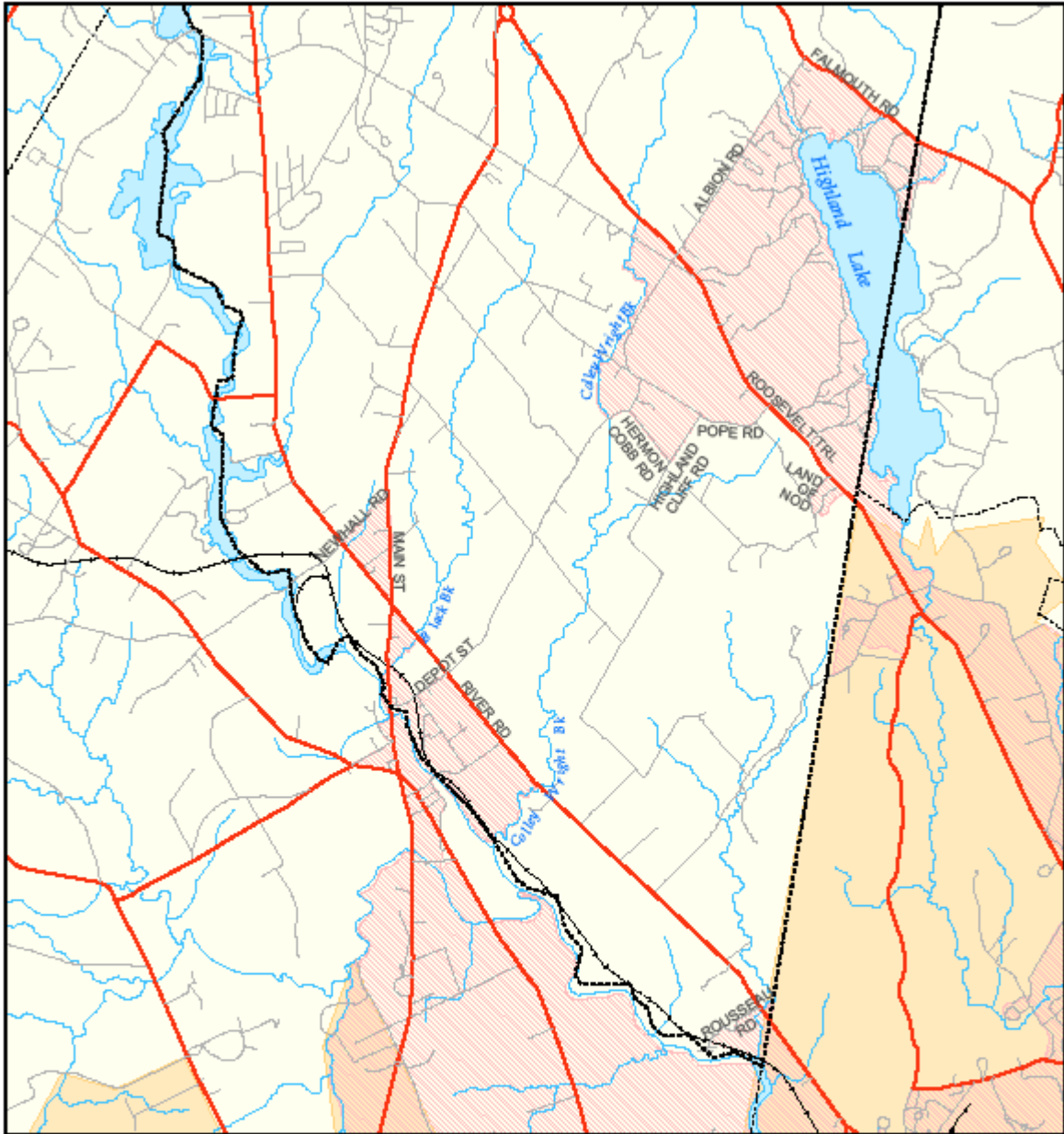


**Windham Stormwater Phase II
Permit Cycle II
Summary Report Permit Year 4
July 1, 2011 – June 30, 2012**



Area of Focus:



**NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas
*Windham, Maine***

- Regulated Area (1990 Urbanized Area)
- Regulated Area (2000 Urbanized Area)
- Windham Town Boundary



Data Sources: Urbanized Areas from US Census Bureau (1990 and 2000). Political boundaries from Maine Office of GIS. Hydrography from NHD. Transportation data from GDT at 1:24,000.
Map Created: June 13, 2002; US EPA-New England GIS Center
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MINIMUM CONTROL MEASURES

I. Public Education and Outreach

The Town of Windham will fulfill the requirements for Public Education and Outreach through participation in the Interlocal Stormwater Working Group (ISWG) and the Town's provision of funding to the ISWG for Public Education and Outreach services, as described in this section of the plan.

See Appendix A

II. PUBLIC INVOLVEMENT AND PARTICIPATION

The Town will fulfill the requirements for Public Involvement and Participation through participation in the Interlocal Stormwater Working Group (ISWG) and the Town's provision of funding to the ISWG for Public Involvement and Participation services, or through directly fulfilling the requirements, as described in this section of the plan.

A. Goal.

Involve the public in both the planning and implementation process of improving water quality and reducing quantity via the stormwater program.

B. Required Best Management Practices

1. Public Notice Requirement

Actions completed during Permit Year 4

Responsible party – ISWG Stormwater Program Coordinator and/or Douglas Fortier, Public Works Director

- 1) The NPDES Stormwater Program is a line item in the annual budget and the Town Council was made aware of the specific funding needs for Permit Year 4.
- 2) The Town of Windham provides public notices for all Town Activities and projects and follows applicable public notice requirements.

2. Host Public Events

Actions completed during Permit Year 4

Responsible party – ISWG Stormwater Program Coordinator and/or Renee Carter, Code Enforcement/Douglas Fortier, Public Works Director

- 1) The Department of Public Works coordinated with the Cumberland County Soil & Water Conservation District to coordinate the "Urban Runoff" 5K race that was held on April 21, 2012 and involved over 500 participants that ran the race and more that attended the family festival. (See Appendix B)

- 2) The Town of Windham participated in an outdoor event held at the Cabella's Department Store in Scarborough to celebrate and raise awareness during the National Public Works Awareness week. Think Blue Maine stickers and Duckies were handed out to the general public to raise awareness about clean water.
- 2) The Town of Windham considers it a high priority to protect Highland Lake water quality as well as support the Little Sebago Lake Conservation Project, Phase III.

Little Sebago Lake Conservation Project – Phase III

- 23 technical assistance site visits completed
- Five road improvement projects completed
- Over 70 conservation practices installed at 11 sites by the CBYCC
- Three steering committee meetings held
- Article about project included in LSLA's Summer Newsletter
- Phase III continues through September 2012

III. Illicit Discharge Detection and Elimination

Goal

Develop, implement and enforce a program to detect and eliminate illicit discharges and non-stormwater discharges.

Prior actions: The Town of Windham passed a Non-Stormwater Discharge Ordinance on February 11, 2005.

B. Required Best Management Practices

1. Develop a watershed based storm sewer system infrastructure map.

Actions completed during Permit Year 1,2 3 and 4

1. Maps were developed and reviewed during Permit Year 1 and include all junk yards with the town and maintains a list that includes owner name, location and map and lot.
2. Permit Year 4 included annual inspections completed on August 31, 2011 of nine Auto Salvage Yards and all were found to be in compliance.

Responsible Party – Code Enforcement Office

- 1) **Additional Activities: “Public Complaint Hotline”** The Town has a formal system to address public complaints. Complaints are received thru email and phone calls to the Code Enforcement Department and Public Works Department. Eleven complaints were logged ranging from septic malfunctions, and lack of septic, building decks without permits, child welfare issues, illegal dumping and trash and debris. Code Enforcement followed up with all landowners and all were sent a violation letter and action was taken for all of the sites.

2. Develop dry weather outfall inspection program.

Prior Actions:

The Town of Windham has:

- Developed a SOP for dry weather outfall inspection program;
- Developed forms and put a data collection system in place for dry weather outfall inspections;
- Established a mechanism to train staff, as needed, on how to conduct and record dry weather inspections;

and

- Established a protocol that identifies the steps that must be taken when an illicit discharge is encountered.

The Town of Windham has 40 outfalls in the urbanized area.

Actions Completed During Permit Year 4

Responsible Party - Douglas Fortier, Director Public Works

1) The Town completed their dry weather outfall inspections between September 19, 2011 and September 21, 2011 and finished September 27, 2011. There were no major illicit discharges or concerns identified in Permit Year 4. Opportunistic inspections are completed in the course of daily work.

4. Open ditch Illicit Discharge Program

Actions Completed During Permit Year 4

Responsible Party - Douglas Fortier, Director, Public Works

1) Illicit discharges are documented during dry weather outfall inspections as well as during the course of daily work. No illicit discharges were identified during Permit Year 4.

IV. Construction Site Stormwater Runoff Control

Goals

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 MDEP's General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems Part IV(H)(4).

Per General Permit Part IV(H)(4a.), the permittee will rely on the Maine Construction General Permit or Chapter 500, Stormwater Management.

B. Required Best Management Practices

1. Notification to construction site developers and operators of the requirements for registration under the Maine Construction General Permit or Chapter 500, Stormwater Management for the discharge of stormwater associated with construction activities.

Actions Completed During Permit Year 4

Responsible party - Code Enforcement

1) The Town continued notification procedures currently in place using the modified building permit and shoreland zoning applications that alert applicants to the MCGP triggers.

2) The Town received and issued thirty nine Shoreland Zoning Permits, six Internal Plumbing Shoreland Permits, twelve septic system shoreland permit, forty Shoreland application review permits and fifteen Soil & Erosion Shoreland Permits.

3) The Town currently has eight Shoreland Zoning unresolved violations and or complaints. Complaints and violations ranged from septic system malfunctions or lack of septic system, illegal dumping and excessive trash and debris.

4) The Town also evaluates the current system and modifies if needed.

2. Develop and implement a mechanism to annually document every construction activity that disturbs one or more acres within the Urbanized Area.

Actions Completed During Permit Year 4

Responsible party - Code Enforcement

1) A tracking system is in place for all activity that disturbs one or more acres. The Town continues to utilize third party inspections.

3. Develop and implement a construction site inspection program.

Prior Actions:

The Town of Windham has:

- Developed a procedure for construction site inspections by either a municipal official or a contracted third party to meet the terms and conditions of the MS4 General Permit.
- Developed a standardized inspection form to ensure documentation of all required inspections.
- Developed a process for tracking and notifying the site developer or contractor of noncompliance issues. For sites that are not in compliance, the inspector(s) will provide site operators with guidance on how to come into compliance. Sites that are not brought into compliance within the inspector's specified time period shall be issued a written notice of deficiencies. Continued noncompliance will be reported to the DEP with supporting documentation.
- Developed and implemented (as needed) a training program for municipal inspectors.

Actions Completed During Permit Year 4

Responsible party –Code Enforcement

1) The Town continues to implement its inspection program for each activity that disturbs one or more acres. Results are documented in a record keeping system and during Permit Year 4 the Town did not have any sites to inspect.

V. Post-Construction Stormwater Management

A. Goal (within the Urbanized Area)

Develop, implement and enforce 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 acres that are part of a larger common plan of development or sale, that discharge into the City's MS4.

B. Required Best Management Practices

1. Implement ordinance or similar measure

Actions Completed During Permit Year 4

Responsible Party - Code Enforcement

1. Develop and implement an inspection program for post-construction BMPs for which the owner or operator has not hired a qualified third party inspector, and which are located in the direct watershed of a lake most at risk from new development or in watersheds of an urban impaired stream.

Actions Completed During Permit Year 4

Responsible Party - Code Enforcement

- 1) Inspections continue to be made on conditions of approval through the planning process.

VI. Pollution Prevention/Good Housekeeping for Municipal Operations

A. Goal

This program has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

B. Required Best Management Practices

1. Operations at municipally owned grounds and facilities.

Actions Completed During Permit Year 4

Responsible Party - Douglas Fortier, Director of Public Works

The Town of Windham has developed the inventory tracking documents necessary for all municipal operations.

1. Operations and Maintenance Plans for Landscaping practices, Pump stations, Fire stations and Forested areas & trails have been developed. The Town of Windham continues to collaborate with other ISWG communities to develop training programs for staff on various O & M procedures.

2. Municipal employee training.

Actions Completed During Permit Year 4

Responsible Party - Code Enforcement

1. Douglas Fortier attended eight ISWG meeting during Permit Year 4.

3. Street sweeping.

Actions Completed During Permit Year 4

Responsible Party - Doug Fortier, Director Public Works

- 1) All municipal streets that have winter sand accumulation and are in need of street sweeping are swept annually between April and June or July depending on spring rains. All school grounds are also swept. Approximately 1904 cubic yards of material was collected through street sweeping. Residuals are deposited in

the old town gravel pit.

4. Cleaning of stormwater structures including catch basins.

Actions Completed During Permit Year 4

Responsible Party - Doug Fortier, Director Public Works

- 1) The Town cleaned 837 basins (746 catch basins and 91 solid cover manholes) in 2011/2012.

5. Maintenance and upgrading of stormwater conveyances and outfalls.

Actions Completed During Permit Year 4

Responsible Party - Doug Fortier, Director Public Works

- 1) The Town inspected and cleaned 837 basins.

6. Stormwater Pollution Prevention Plans (SWPPP's)

Actions Completed During Permit Year 4

Responsible Party - Doug Fortier, Director Public Works

- 1) The Town Public Works facility has a Stormwater Pollution Prevention Plan completed by Environmental Engineering and Remediation, Inc in February 2006.

Actions Completed During Permit Year 4

Responsible Party - Code Enforcement and Doug Fortier, Director, Public Works in collaboration with Cumberland County Soil & Water Conservation District

- 1) During Permit Year 4, six public works employees participated in an annual training for "Stormwater Pollution Prevention for Construction Sites" and four employees attended the training on "Municipal Operations Stormwater Pollution Prevention" on March 5th and April 11th respectively. The following employees attended the SWPPP training; Tim Lamb, Steve Long, Tony Perkins, Dave Rampino, Gene Fecteau, Fred Genthner, Chris Hodgdon, Forrest Lamb, Jamie Leighton, Steve Prescott and Doug Fortier.

APPENDICES

- A. Public Education and Outreach Report
- B. Urban Runoff 5K summary

APPENDIX A: Permit Year 4 Summary of Minimum Control Measure 1

Stormwater Awareness Plan Implementation

Outreach Tool	Status	Details	
Exposure - to be in compliance, implement A1 and one additional activity (A2, A3, A4 or A6).			
A1 - Run the Ducky II ad for 3 weeks	incomplete	This task was completed in PY3, as previously approved by Maine DEP.	
A2 - Distribute posters at municipal offices, libraries, local hotspots (coffee/sandwich shops)	complete	A total of 275 stormwater-related posters were displayed in local establishments in the 14 ISWG communities.	
A5 - Ducky ad + <i>After the Storm</i> , a video co-produced by EPA & the Weather Channel on local cable access stations	complete	Each ISWG community's public access television station was provided with a copy of the Ducky II ad as well as a copy of <i>After the Storm</i> . The following information was received from the stations regarding air play:	
		Biddeford	No data provided
		Cape Elizabeth	<i>After the Storm</i> aired daily at 12:00 p.m. and 6:00 p.m. in April and May.
		Cumberland	No data provided
		Falmouth	No data provided
		Freeport	No data provided
		Gorham	<i>After the Storm</i> and the Ducky ad aired; unable to provide estimate of frequency.
		Old Orchard Beach	<i>After the Storm</i> and the Ducky ad aired; unable to provide estimate of frequency.
		Portland	<i>After the Storm</i> was aired three times per week in April and May; the Ducky ad plays frequently between programming.
		Saco	No data provided
		Scarborough	No data provided
		South Portland	<i>After the Storm</i> and the Ducky ad ran frequently between programs.
		Westbrook	<i>After the Storm</i> and the Ducky ad aired; unable to provide estimate of frequency.
		Windham	No data provided
Yarmouth	<i>After the Storm</i> and the Ducky ad played frequently throughout the day		

Retention - to be in compliance, implement B1 & B4 and one additional activity (B2, B3 or B5).		
B1 - Prominent links established on municipal and partner websites	complete	All websites for ISWG communities feature a link to www.thinkbluemaine.org .
B2 - Article in local newspaper and/or town newsletter	complete	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 article ran in all editions of the <i>Forecaster</i> (April 11, 2012)
		Portland Press Herald: Maine Voices: Rainy days bring gloomy thoughts about impact on Casco Bay (May 8, 2012)
B4 - Purchased ad space - 3 week duration	complete with modification	With approval from Maine DEP, ISWG chose to utilize online advertising in lieu of print ads. Online ads that directed viewers to www.thinkbluemaine.org ran on news and outdoor-focused websites

	<p>in all ISWG communities for the months of March, April and May.</p> <p>Using Time Warner Cable’s online ad service, ISWG was able to specifically market to our specific 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 600,000 times and had a “click through rate” (the number of times the ads were clicked) of 0.06%. ISWG’s click through rate was higher than the industry average of 0.04%.</p> <p>While the ads reportedly reached the target audience, and our audience clicked on the ads, the Think Blue Maine website did not experience a noticeable increase in hits. The tracking software used on www.thinkblumaine.org allows us to track where the web hits originate. Information from the tracking software indicates that the audience visiting the website during the months of March through May was made up of primarily homeowners and “regular” citizens. In the months preceding the web ad campaign, those viewing the website were typically stormwater managers from Maine and elsewhere.</p>
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Acceptance - 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.	complete	An email promoting the <i>Urban Runoff</i> and <i>Green Neighbor Family Fest</i> was sent to all employees ¹ in ISWG. 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.	complete	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: 1297
		Saco: 111
		Scarborough: 110
		South Portland: 86
		Westbrook: 111
Windham: 96		
Yarmouth: 61		

¹ 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	Details
Reporting		
Summarize plan implementation to date	complete	

Point of Sale

Retain 19 Point of Sale locations in the ISWG communities.	complete	Two additional Point of Sale locations joined the program in the spring of 2012 (one in Old Orchard Beach and one in Windham), bringing the total number of stores participating in the program to 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 adult education classes per year	complete	Windham: 8/24/2011, 3 participants
		Portland: 9/8/2011, 7 participants
		Gorham: 9/15/2011, YardScaping class offered by Cooperative Extension, 13 participants
		Windham: 10/12/2011, Youth YardScaping teacher training, 4 participants
		Falmouth: 4/14/2012, 49 participants
		Windham: 5/5/2012, Blue Seal open house 25 participants
Promote adult education classes	complete	Falmouth: 6/17/2012, Falmouth Middle School Youth YardScaping presentation, 42 participants
		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 network websites, and through host locations.
Track behavior change	complete	CCSWCD staff documented class evaluations and contacted past adult education class participants to determine which YardScaping practices were implemented. Please see summary of behavior change reported by participants of PY3 classes, as well as those practices participants of PY4 classes intend to implement, below.

Targeted Information Distribution

Distribute information to priority neighborhoods (minimum of 50-100 households in size) in each ISWG community.	complete	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: 1297
		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)	incomplete	With approval from Maine DEP, this task was removed from ISWG's BMP Adoption Plan.

Websites & Free Media

Maintain CCSWCD YardScaping website	complete	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	complete	Portland Press Herald: Give them an inch, they'll take your yard (July 24, 2011)
		Portland Press Herald: Maine Gardener: Gorgeous and hardy: The garden of the future? (October 23, 2011)
		Portland Press Herald: Maine Gardener: Reviving a lawn requires more than good seed and frequent watering (May 13, 2012)
		Portland Press Herald: Earth-friendly demo gardens to open on Back Cove (June 5, 2012)
		Portland Press Herald: Portland gardens show how to nurture nature naturally (June 11, 2012)

Neighborhood YardScape Socials

Hold a minimum of zero neighborhood socials in the ISWG communities	complete	One neighborhood social was held in Windham. Three people participated.
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Adult Education – Behavior Change Tracking

During the fall of 2011, CCSWCD staff made follow up phone calls with participants of YardScaping adult education classes held in the fall of 2010 and spring of 2011 (PY3 who provided their contact information on class evaluations in order to determine the level of follow through of the YardScaping practices class participants intended to use). As expected, it was difficult to reach people, but the information gleaned from those who were reached provided an anticipated rate of compliance for the YardScaping practices that class participants intended to implement.

Follow up phone calls from Permit Year 3 YardScaping Classes			
Lawn Care Practice	Plan to implement	Implemented practice	% behavior change
Set Mower to a height of 3"	6	6	100%
Leave grass clippings	6	6	100%
Sharpen mower blades	4	2	50.0%
Aerate	15	10	66.7%
Topdress	17	10	58.8%
Overseed	13	10	76.9%
Use low maintenance seed	14	10	71.4%
Get a soil test	13	8	61.5%
Use nitrogen-only fertilizer	13	10	76.9%
Use compost tea	14	6	42.8%

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 4 post-class evaluations completed by the YardScaping class participants.

Permit Year 4 YardScaping 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	100.0%
Leave grass clippings	3	4	75.0%
Sharpen mower blades	12	13	92.3%
Aerate	21	25	84.0%
Topdress	20	22	90.9%
Overseed	19	22	86.4%
Use low maintenance seed	21	24	87.5%
Get a soil test	18	23	78.3%
Use nitrogen-only fertilizer	11	19	57.9%
Use compost tea	18	24	75.0%

CCSWCD staff will contact the class participants from the Permit Year 4 classes in the fall of 2012 to determine which behaviors have been adopted.

Summary: ISWG Youth Education Activities

Windham

Total students: 304

Total contact hours: 1,643

Lesson topics: Third year of “Ecocentricity” event where high school students taught in-field lessons to middle school students about water, including stormwater, water cycle, watersheds, wastewater, soil/geology, water quality parameters & testing, wastewater, and ecology; nonpoint source pollution, human impact, watershed characteristics, stormwater, low impact development, and behavior change.

Schools: Windham High School, Windham Middle School, Windham Adult Education

Educator: CCSWCD, PWD

* The **Southern Maine Children’s Water Festival** is a one-day event occurs that annually each May, drawing about 600 middle school students from all over Southern Maine to learn about different aspects of water. Students participate in classroom presentations, a stage show about ecology, “Dripal Pursuit” competitions, and exhibit hall activities. The Festival’s focus is on water, ecosystems, nonpoint source pollution, and ways that students can be part of the solution.

** The **Envirothon** is an environmental competition conducted throughout Maine each spring. High school students test their knowledge of natural resources and current environmental issues in an outdoor setting. Teams of three to five students are tested at five stations: Wildlife, Aquatics, Forestry, Soils, and a Current Natural Resources Issue. The top three teams at each regional competition compete in the State competition, with the advancement to a national competition for top-placing teams.

Educator contact information

CCSWCD: Sarah Plummer, Education Coordinator, Cumberland County Soil & Water Conservation District, sarah-plummer@cumberlandsxcd.org, 207-892-4700 x 107

PWD: Lynne Richard, Education Coordinator, Portland Water District, lrichard@pwd.org, 207-774-5961 x 3324

Youth YardScaping Program

This year marked the third year of Falmouth Middle School’s participation in the Youth YardScaping program, which has proven effective at increasing awareness of local stormwater issues and changing lawn care behaviors.

In this program, clean water lessons are interwoven throughout the year-long science curriculum of two sixth grade classes. Lessons begin with the basics: the water cycle, water movement and watershed characteristics. Students then receive reinforcement of these concepts and begin learning about runoff, nonpoint source pollutants and their impact on water quality.

In the early spring, the program intensifies to focus on one of the largest threats to local water quality: pesticides and fertilizers from lawn care products. Students form a lawn care company and split into groups that research various lawn care techniques and implement the practices on the school’s courtyard, including mowing, aerating, topdressing, overseeding, watering, soil testing, fertilizing, brewing and applying compost tea and controlling weeds and bugs. Other groups are dedicated to researching background topics like the soil food web, watersheds and nonpoint source pollution. Both classes also participate in long-term experiments to test the effects of different fertilizers and pesticides on a water quality ecosystem and use the experiment as part of their research.

Students present their research and demonstrate their practices at a public presentation, which has been attended by approximately 40 to 50 people annually, including parents, members of Falmouth’s Conservation Commission and University of Maine Cooperative Extension’s Master Gardener Program, as well as school administrators. In 2012, both the Superintendent and Principal of Falmouth Middle School attended the presentations and endorsed the program afterwards. In 2012, a public exhibit component was added after the presentation. Students set up their displays in the school library, giving the audience an opportunity to look at their visual displays and ask questions of the lawn care “experts.” This was also well attended, and many attendees also discussed healthy lawn care techniques with CCSWCD staff and took YardScaping fact sheets provided by CCSWCD.

Both anecdotal evidence and written surveys completed by the students demonstrate the success of the Youth YardScaping program at increasing awareness of stormwater, runoff and water quality, and changing lawn care behaviors of the students' parents (part of the target audience laid out in ISWG's BMP adoption plan). In addition, the program is successful at imparting other transferrable life skills, such as public speaking, working both in groups and independently, completing self-directed research projects, preparing displays and notecards and seeking and preparing research from various sources.

Several parents of children who participated in the program two years ago had children participate again in 2012. Some shared they had changed their lawn care practices as a result of their first child's participation. One family decided to stop using a popular lawn care service, while another changed their practices out of concern for the health impacts to their dog.

Students have completed written surveys each year of the program, at the beginning and end of the school year. These surveys demonstrate increased awareness of nonpoint source pollutants, stormwater, runoff and ways to improve water quality. Surveys also indicate students are learning a great deal about how lawn care products and practices relate to water quality, and are thinking critically about environmental issues and their ability to make an impact.

Below are some responses to student survey questions. These responses have only been edited for spelling; otherwise, these responses are verbatim. One student response from an open-ended question sums the experience up well:

... I thought it [the Youth YardScaping Program] was valuable because now we know what we can do to stop polluting our local bodies of water. We can also stop putting bad chemicals in the water and our lawns. I thought that it was one of the most valuable things we learned in this school year.

The most telling question on the survey is "What was the most important thing you learned?" The responses to this question, below, have been organized into topics.

The "Big Picture"

- ...that your every day practices (like using synthetic herbicides) can harm the environment. We need to be more aware.
- ... that just one little thing can make a big impact on our environment whether it be good or bad.
- I learned that what we put on our lawns really effects our environment. Like with eutrophication. And that if your dog rolls around in our lawn when you have stuff on it, they can get sick.
- ...demonstrating how other people can have great lawns while helping the environment.
- ...was to think about what you're doing before you do it because it could really harm other things.
- ... was how to care for our lawn. All about mowing, watering, fertilizing, pesticides, etc... Also about nonpoint source pollution (cumulative impact) and how I can help.
- ...about nonpoint source pollution and cumulative impact.

Fertilizer

- ...that every fertilizer has an effect on the environment.
- ...was how easy it is to buy way too much fertilizer.
- ...you should only fertilized if you have to (it is a last resort).
- ...that fertilizer is a last resort. There are a lot of other options before fertilizing like using compost tea, leaving your grass clippings on your lawn, and you can also aerate.
- That using pesticides and fertilizers on your lawn can harm a lot around the environment.

Pesticides

- ... that pesticides are bad for the environment. I thought this was important because pesticides kill more than just the pests they also kill more important things.
- ...that pesticides are bad for you and the environment. Kids can get brain damage and dogs can get diseases.
- ...just because a pesticide is organic does NOT mean it is safe.

Other practices

- That you can have a big effect on the environment if you soil test.

- I learned how to take care of lawns the healthy way. Now at home, I can: have my step-dad mow, then I topdress, then overseed, then compost tea. And it will look healthy.
- ...that compost tea is a lot better and more environmentally friendly for your lawn than fertilizer.

In addition, responses to various survey questions demonstrate students' acquisition of other important life skills:

Public speaking/teaching

- ... we knew what eutrophication was, and we were able to tell other people about it, and make them aware of what they're doing when they use synthetic fertilizer and pesticides.
- I enjoyed the presenting part of the Yardscaping project the most because I thought it was really cool to teach people about the environment and how to keep it healthy.
- ... and even though I was very nervous I enjoyed talking in front of parents, because I felt like I was informing them.
- I really enjoyed being in front of everyone and teaching them how to get rid of their weeds in a safe, natural way.
- I really enjoyed presenting. I have always been a fan of giving speeches and it felt good to show everyone what I had learned.
- I really enjoyed being able to show what I learned and to listen to what other people learned.

Group work/peer learning

- Working in small groups can be challenging.
- I really enjoyed the presentations, because even though you didn't study that topic, you got to get some knowledge from them.

Lastly, the surveys indicate students are sharing information with others and changing their family's lawn care practices. Students shared or planned to share their lawn care knowledge with various people, including parents, siblings, extended family, neighbors, and friends.

When asked what information they had shared or would share, they responded:

- What we all did, how to do it, why we did it, and how it affects our community.
- How fertilizing is a last resort and that my dad should leave the grass clippings down.
- We have a lake house and we cannot use fertilizer so I told her [mother] about compost tea because it wouldn't cause eutrophication.
- Pesticides can be very harmful to the environment and to humans.
- That it is important to soil test before fertilizing.
- I talked about the [watering] guidelines and root growth.
- I shared information on grubs and ants.

When asked what practices they were doing or planned to do as a result of the program, responses included:

- I made compost tea for my lawn, used the organic weed killer, and my dad was top dressing our lawn the day after [the presentation].
- If, at some time my house needs topdressing, I'm sure I'll have the knowledge to do so. Although my lawn is big, it'll be very healthy.
- We are going to start using compost tea at our lake house because you cannot use fertilizer.
- ... when we mow, we will remember to not go lower than 3 inches.
- We are leaving the grass clippings for a natural fertilizer. My mom thought it was a great idea.
- I will try using a different sprinkler on my lawn, because with the sprinkler we have now it evaporates and doesn't get to a lot of the plants and soil.
- Watering 65 min. at 4:00 a.m. in the morning with rotary impulse sprinkler.
- ... I am leaving the grass clippings on my lawn when I mow it.
- I will be checking to see if we have a grub problem, if ants are naturally aerating our lawn, and see if any ants are getting into our house.
- My mom has decided to use the grub removal trick that was shown in the presentation.
- ... I am thinking about renting an aerator for our neighborhood.

Seventh and eighth grade students who participated in the program in 2010 and 2011 completed follow up surveys in 2012 to determine retention of information and behavior change. Results varied between the two groups. Although results indicate both groups retained information and demonstrated behavior change, the 2010 group retained more and changed more behaviors. This is most likely because in 2010, both sixth grade science classes focused only on the Youth YardScaping (YY) curriculum. In 2011, three sixth grade science classes took part in a larger project where each class focused on three separate topics: watershed stakeholders, Youth YardScaping, and forestry. Analysis of the follow up surveys shows that it is more effective to focus science classes on the YY project instead of focusing on several different, although related, topics.

Still, former students from both years retained much of their knowledge of water quality. Students were asked to list the main sources of water pollution:

- Students from 2010 class: 100% recalled one or more specific nonpoint source pollutants covered in the YY program, such as pesticides, phosphorus, human activity, lawn care products, animal, dog, and human wastes, fertilizer, soil, runoff, and chemical, while rarely listing other nonpoint source pollutants such as oil, gasoline, and trash.
- Students from 2011 class: 66% recalled one or more specific nonpoint source pollutants covered in the YY program with oil, gasoline, and trash listed in half of all student responses.

When asked, “What is the most effective way to keep pollutants out of our water?” student responses included:

- Not put chemicals on your lawn.
- Use products that won’t harm the environment if it does go into the water.
- Don’t spray plants with harmful spray.
- Use all natural things to keep things away. Don’t spray what can be harmful to fish and marine life on your lawn.
- Watch runoff and chemicals getting into rivers. Pick up waste/animal waste.
- Use healthy lawn care products that won’t pollute water.
- Use safe lawn care products.

Students from the 2010 and 2011 classes also recalled the names of lawn care practices used in the YY curriculum. Seventy nine percent of students from the 2010 class and 61% percent of students from the 2011 class recalled specific names of practices their group did not research, including aerating, topdressing, mowing, watering, soil testing, overseeding, compost tea, fertilizing, and pest control.

Results from the surveys also indicate students and their families are changing lawn care behaviors. Students were asked if they were implementing any of the YardScaping practices at home. In the 2010 group, 63% responded they were, and of that group, 52% were doing so as a result of participation in the school program. Results from the 2011 group indicated 66% of these families were applying YardScaping practices, and of that group, 50% were doing so as a result of the YY program.

Student responses about the practices adopted include:

- Overseeding, aerating.
- We have tried using natural pesticides and other environmental safe fertilizers.
- We water our grass in the morn. and stay away from chemicals.
- We have been watching what we put on our lawn and have been trying to use all natural materials.
- I am doing soil testing as a result of that [YY project].
- Watering so that the plants accurately get water.
- We have been watering our lawn more effectively.
- We are keeping the grass clipping on the lawn sometimes. This gives the grass more nutrients.
- [My mom]... now uses these [practices] when needing to – cornmeal and rubbing alcohol to kill ants.
- My mom topdresses and we don’t mow so low anymore.

Below are more questions and sample responses from students who participated in 2010 and 2011, and some sample responses.

“Have you encountered any challenges or successes when doing any of the practices? Please share.”

- Yes, we aerated and the grass grew thicker.

- They [natural pesticides & environmentally safe fertilizers] worked well on our yard.
- Success – our grass is greener and more thick/healthy.
- The plants are growing better as a result [of proper watering].
- Yes, our lawn is much greener.

“Have you shared any of your knowledge of YardScaping practices with anyone since you did the Youth YardScaping project? If yes, whom did you share it with and what did you share?”

- I shared it with my grandparents because they have a big yard and never aerated.
- Yes I have. I shared it with one of my neighbors and she is now using their techniques to keep her lawn healthy.

“What stands out the most about the YardScaping unit from Mrs. Olsen’s class?”

- If you do lots of these procedures on your lawn, you can change the pollutants in the water.
- How we do our gardening and other Yardscaping things can affect other parts of the environment.
- It got us, as a class, outside and doing things. Hands-on activities.
- You don’t have to use a whole bunch of chemicals to get a good yard.
- That it was in depth enough so you would know it inside out.
- That if we do something wrong it can effect everything.

“Please share any other comments about the Youth YardScaping project that will help us determine if it’s a worthwhile project.”

- I think this project taught kids and their parents how to keep a healthy lawn and keep pollution out of local watersheds.
- It helps teach better products to use to make your lawn look better and not pollute water.
- I think it helped to embed knowledge by doing and presenting the project.
- The Youth YardScaping project was a fun, educational program. It was fun to learn more about the effect things had on the environment and I think it brought our class closer together.
- It’s worthwhile because it teaches kids about things their parents might be doing wrong and help them and the environment.

Results from students that participated in 2012 and have participated over the past two years indicate the success of the program on many levels, and CCSWCD plans to continue the program at Falmouth Middle School and expand the program to one new ISWG community per year.

APPENDIX B: Permit Year 4 Summary of Minimum Control Measure 2

Urban Runoff & Green Neighbor Family Fest

The inaugural *Urban Runoff* 5K race and walk and the *Green Neighbor Family Fest* were held on April 21, 2012. The goal of these events was to raise awareness of stormwater and funds for ISWG's youth 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, the inaugural event was a huge success. A total of 562 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. Approximately 25,000 students in all public K-8 schools in each ISWG community received advertisement of the race and cause. Local media outlets advertised the events, including radio sponsorship during the month of April by 98.9 WCLZ and CCSWCD interviews on Fox's 23 *Good Day Maine* and Time Warner Cable's *Let's Connect*. Online advertising through Facebook 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 1,500 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 2012 post-race survey did not include questions directly related to increased awareness of stormwater issues but awareness questions will be included in the 2013 post-race survey to gauge the effectiveness of these outreach methods.

The *Green Neighbor Family Fest* was held after the race on the front lawn of Deering High School. The event ran for four hours and was attended by approximately 1,000 people. Scheduled events included the awards ceremony and three child-focused, environmentally-themed live performances, including music, theater and storytelling. A total of 13 exhibits were set up by local nonprofit and governmental organizations, universities and businesses to provide hands-on, educational activities for children. These activities included water quality testing, macroinvertebrates as water quality indicators, a marine touch tank, "poo bag" toss (about proper disposal of pet waste), and many more. Children also took part in face painting and a "Pollution Solution" obstacle course.

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 second annual *Urban Runoff* 5K and *Green Neighbor Family Fest* on Saturday, April 20, 2013.