

Municipal Programs to Address Nutrient Pollution

Fred Dillon – Stormwater Program Coordinator



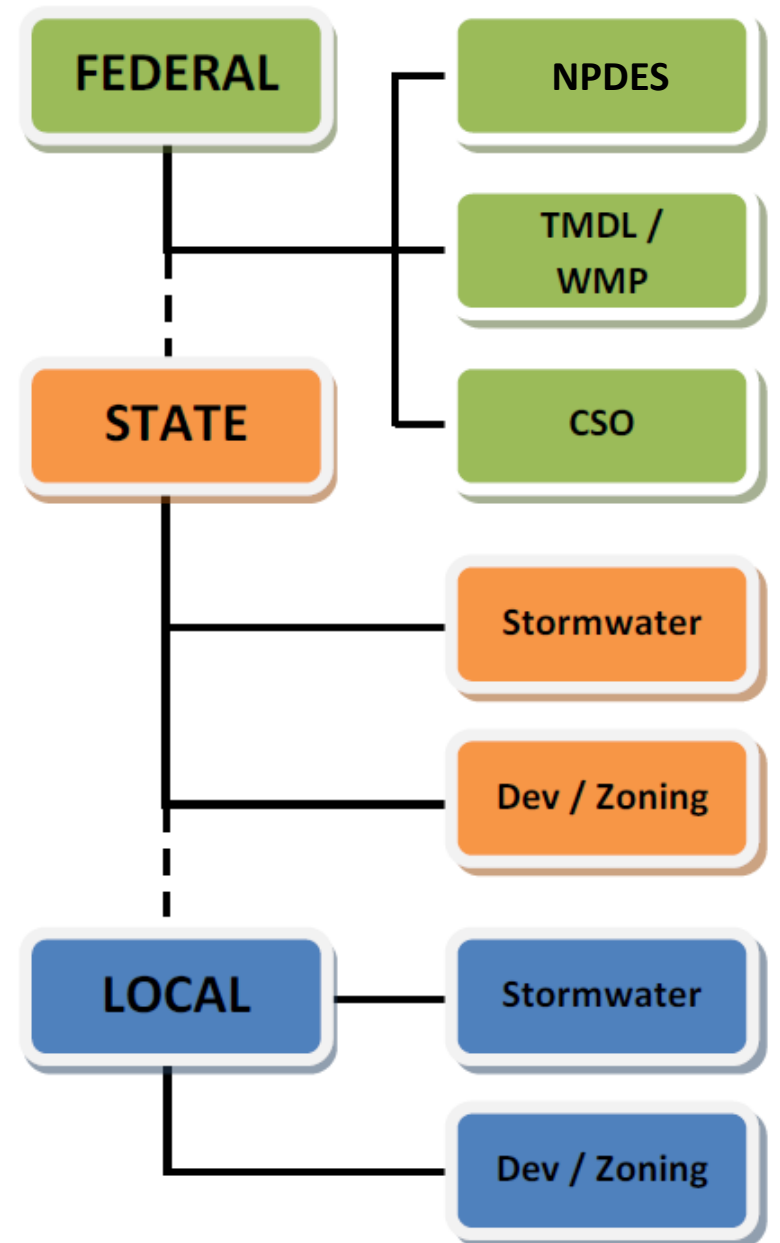
Casco Bay Coastal Academy

Nutrient Pollution in Your Community – 1/27/20



Regulatory Drivers

- Wastewater Discharge License
- Combined Sewer Overflow
- Impervious Cover (& NPS) TMDL
- MS4 General Permit



Regulatory Drivers

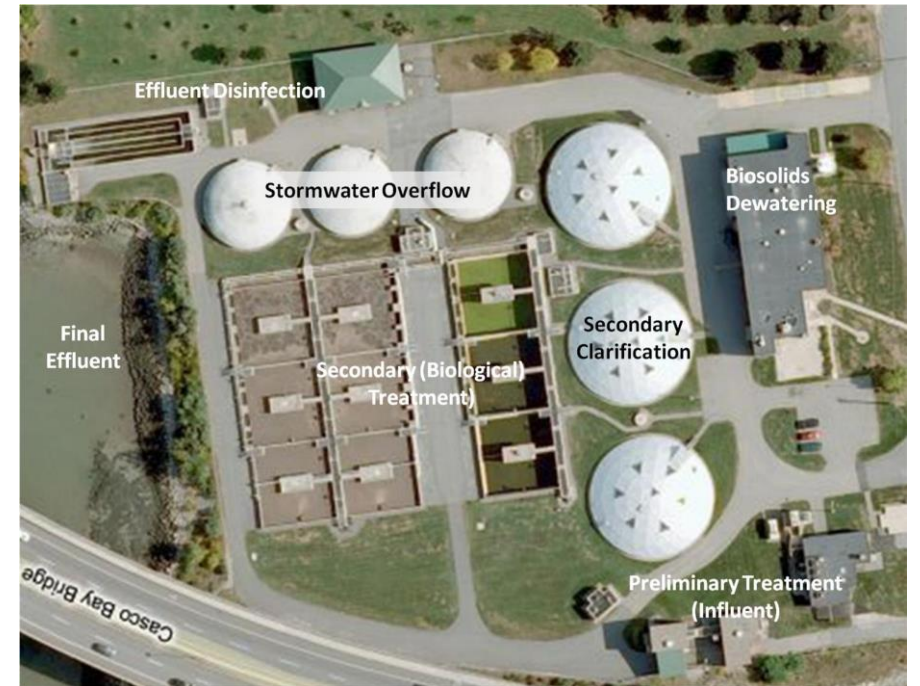
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What is NPDES?

The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States.

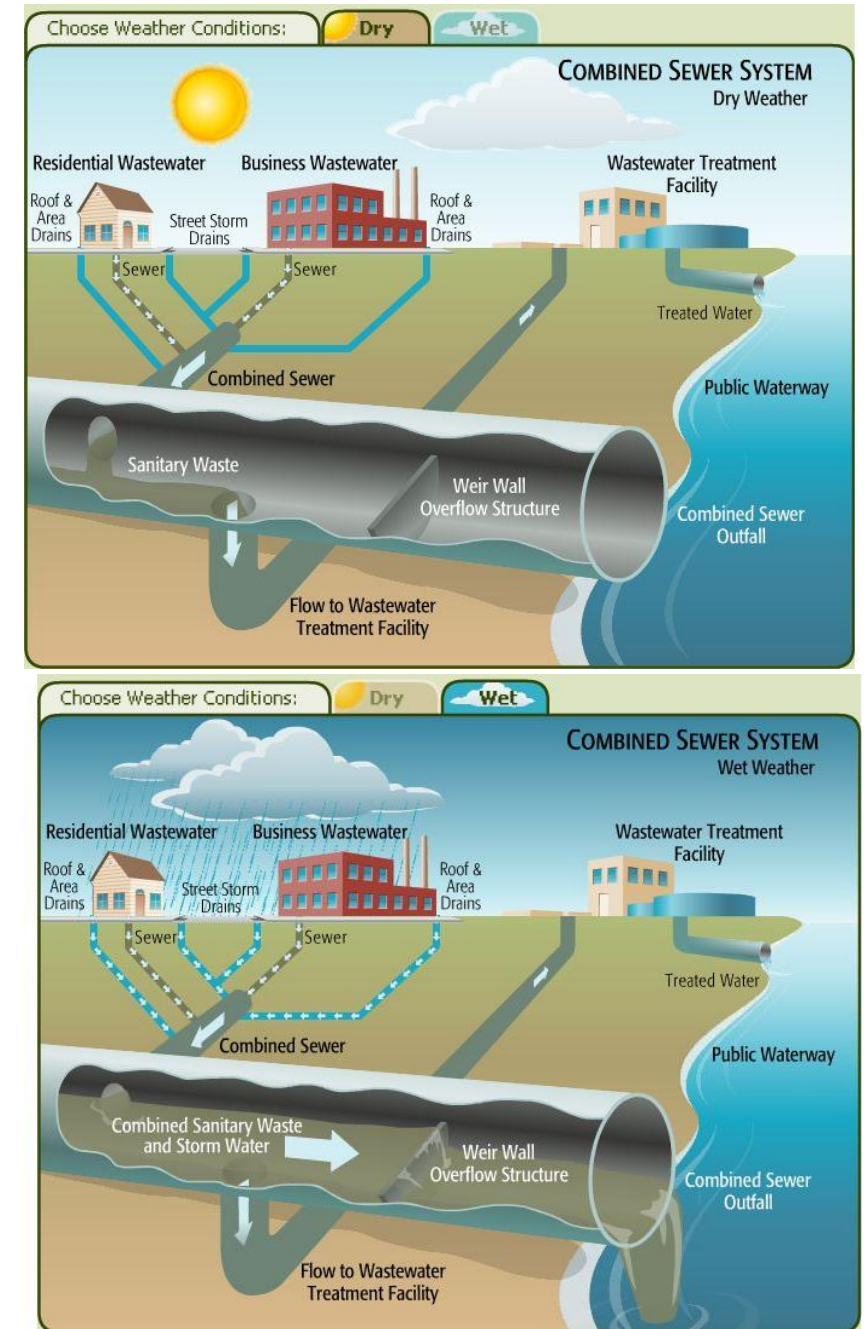
Created in 1972 by the Clean Water Act, the NPDES permit program is authorized to state governments by EPA to perform many permitting, administrative, and enforcement aspects of the program.

1 2 3



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Maine Impervious Cover
Total Maximum Daily Load Assessment
(TMDL)

for Impaired Streams



Regulatory Drivers

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Maine Statewide
Total Maximum Daily Load (TMDL)
for Nonpoint Source (NPS) Pollution



Regulatory Drivers

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What is an MS4?

An MS4 is a publicly-owned or operated stormwater drainage system

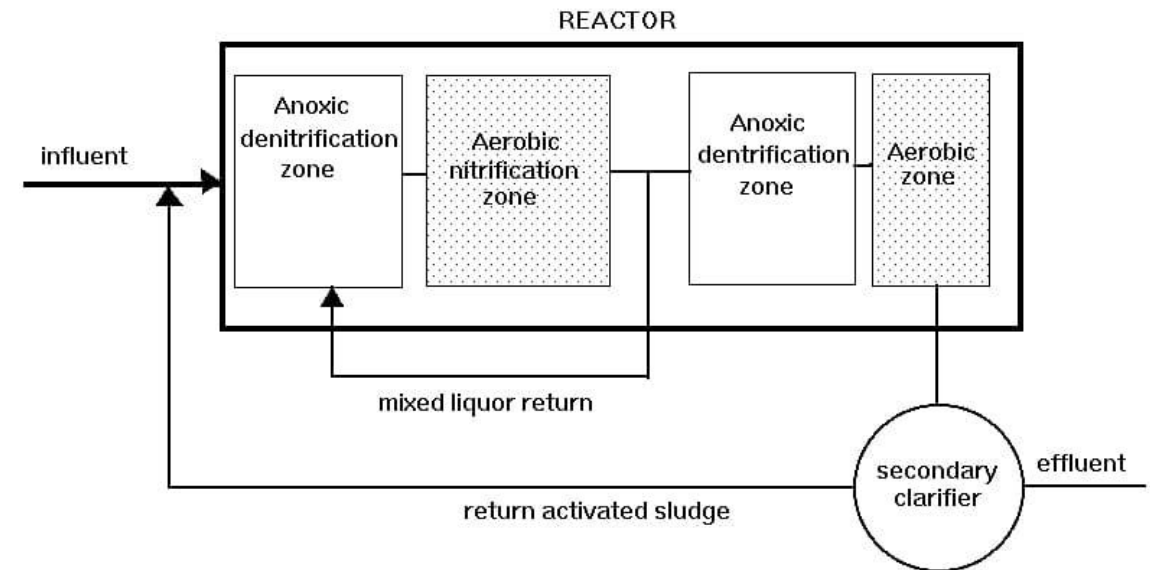
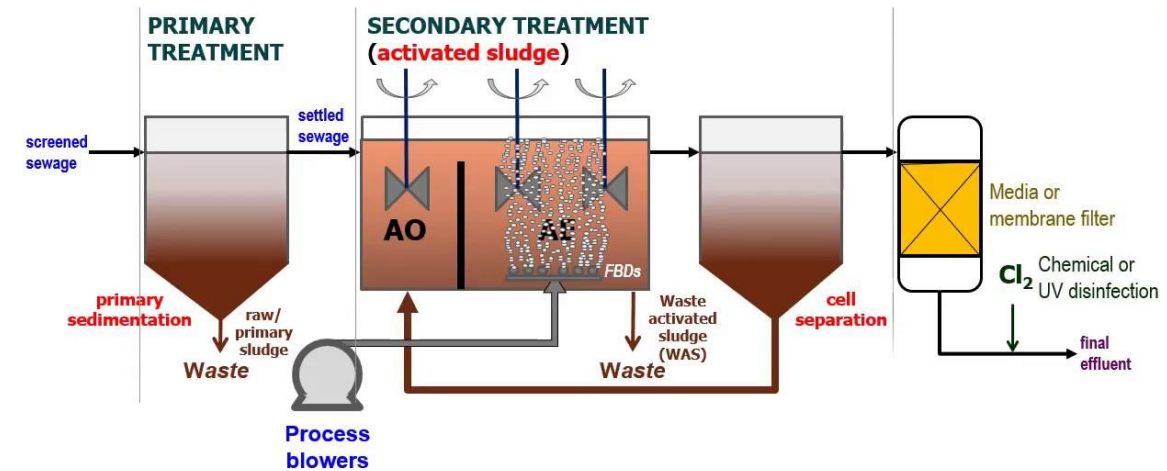
- Designed to collect or convey stormwater
- Includes storm drains, pipes, ditches, gutters, etc.



Municipal Responses

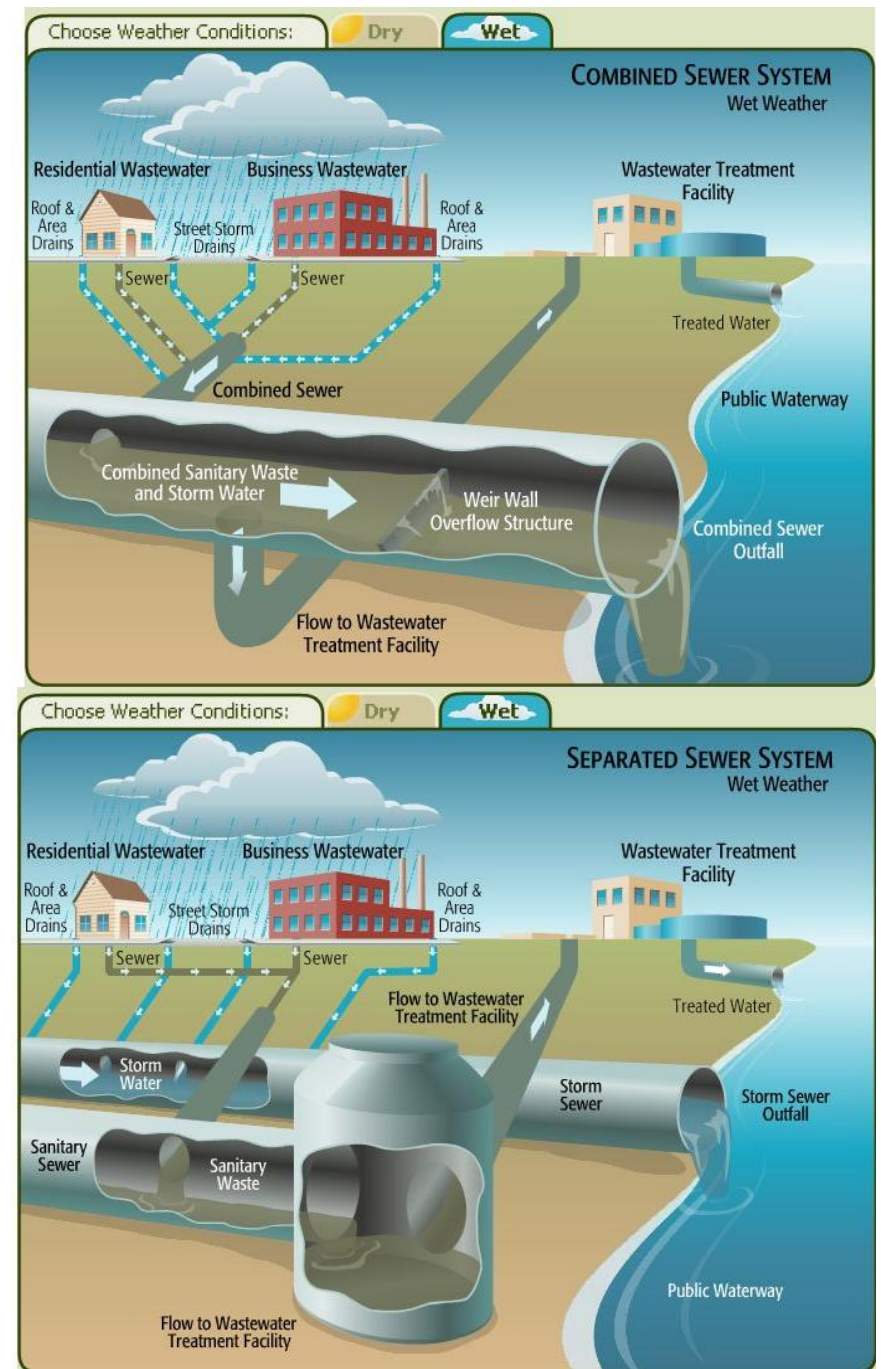
- POTW process modifications
- Stormwater separation / CSO abatement
- Integrated planning
- SPMPs, WMPs, BMPs, local ordinances

Classical aerobic wastewater treatment



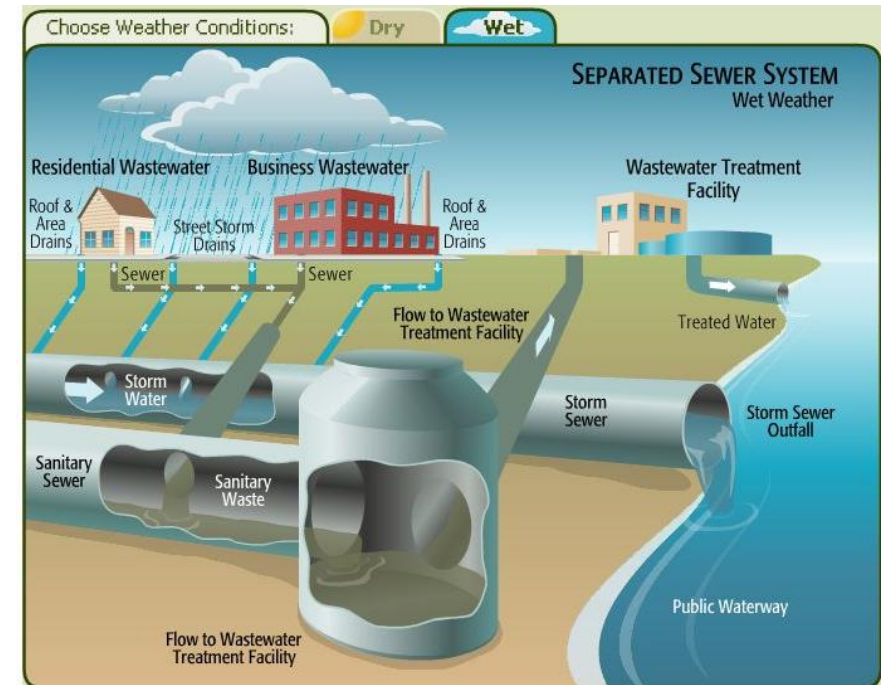
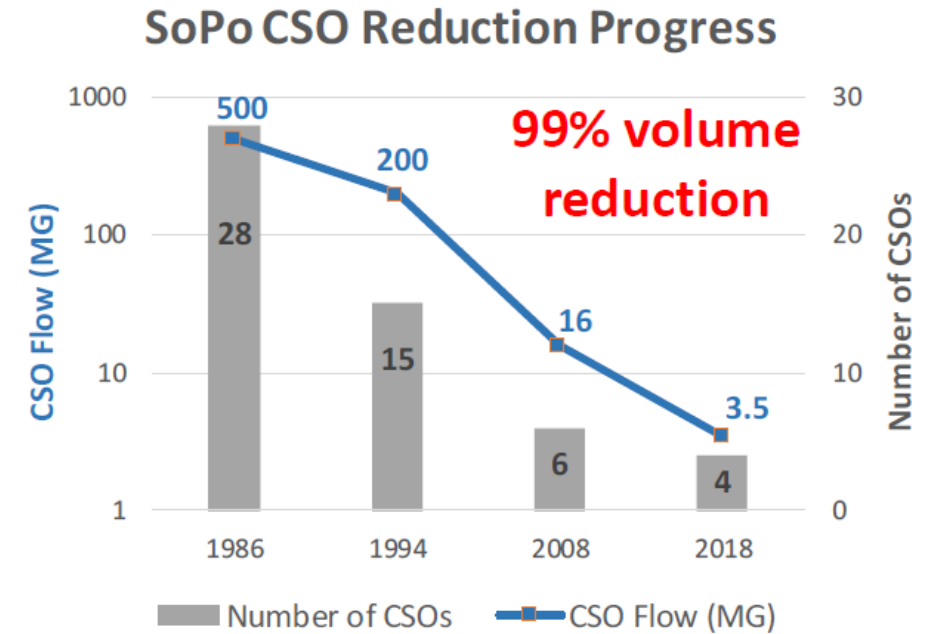
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- SPMPs, WMPs, BMPs, local ordinances



Prioritizing Wastewater and Stormwater Projects Using Stakeholder Input



Office of Wastewater
Management

August 2017
EPA 830-R-17-002

Municipal Responses

- POTW process modifications
- Stormwater separation / CSO abatement
- **Integrated planning**
- SPMPs, WMPs, BMPs, local ordinances



EPA
United States
Environmental Protection
Agency

Office of Wastewater
Management

August 2017
EPA 830-R-17-002

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- **SPMPs**, WMPs, BMPs, local ordinances

CITY OF SOUTH PORTLAND, MAINE
2013-18 STORMWATER PROGRAM MANAGEMENT PLAN

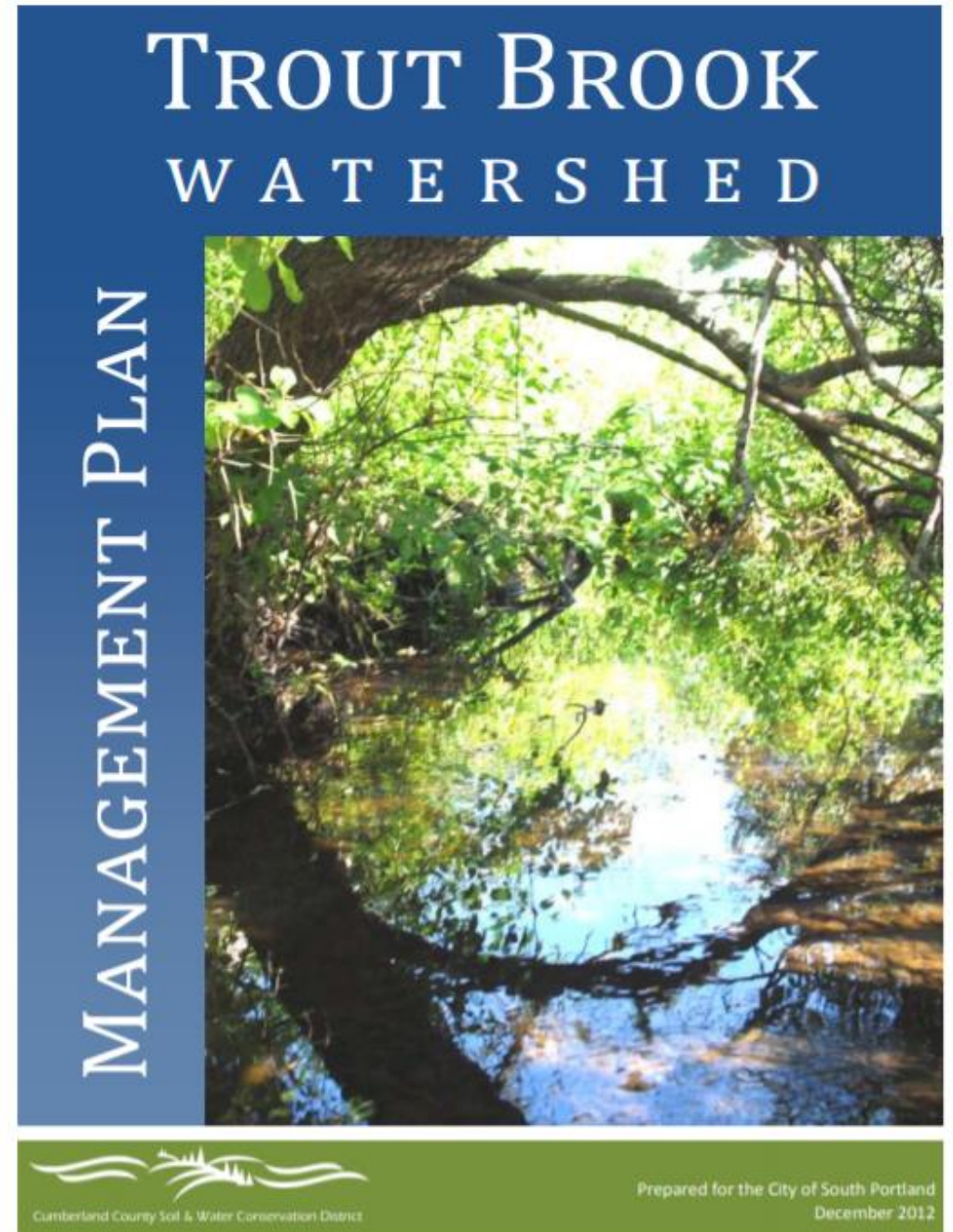


Plan Submittal Date: December 20, 2013

Maine DEP Approval Date: January 3, 2014

Municipal Responses

- POTW process modifications
- Stormwater separation / CSO abatement
- Integrated planning
- SPMPs, **WMPS**, BMPs, local ordinances



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BOOTHBY AVE STORMWATER TREATMENT SYSTEM INSTALLATION – Nov. 2016



WRP's Tim Parks provides engineering oversight during initial installation.



Precast Concrete Products delivers StormTree structure to site.



StormTree structure being lowered into area excavated by WRP construction crew.



WRP's Randy Rafuse and Lee Gagnon help set StormTree structure into place at specified elevation.



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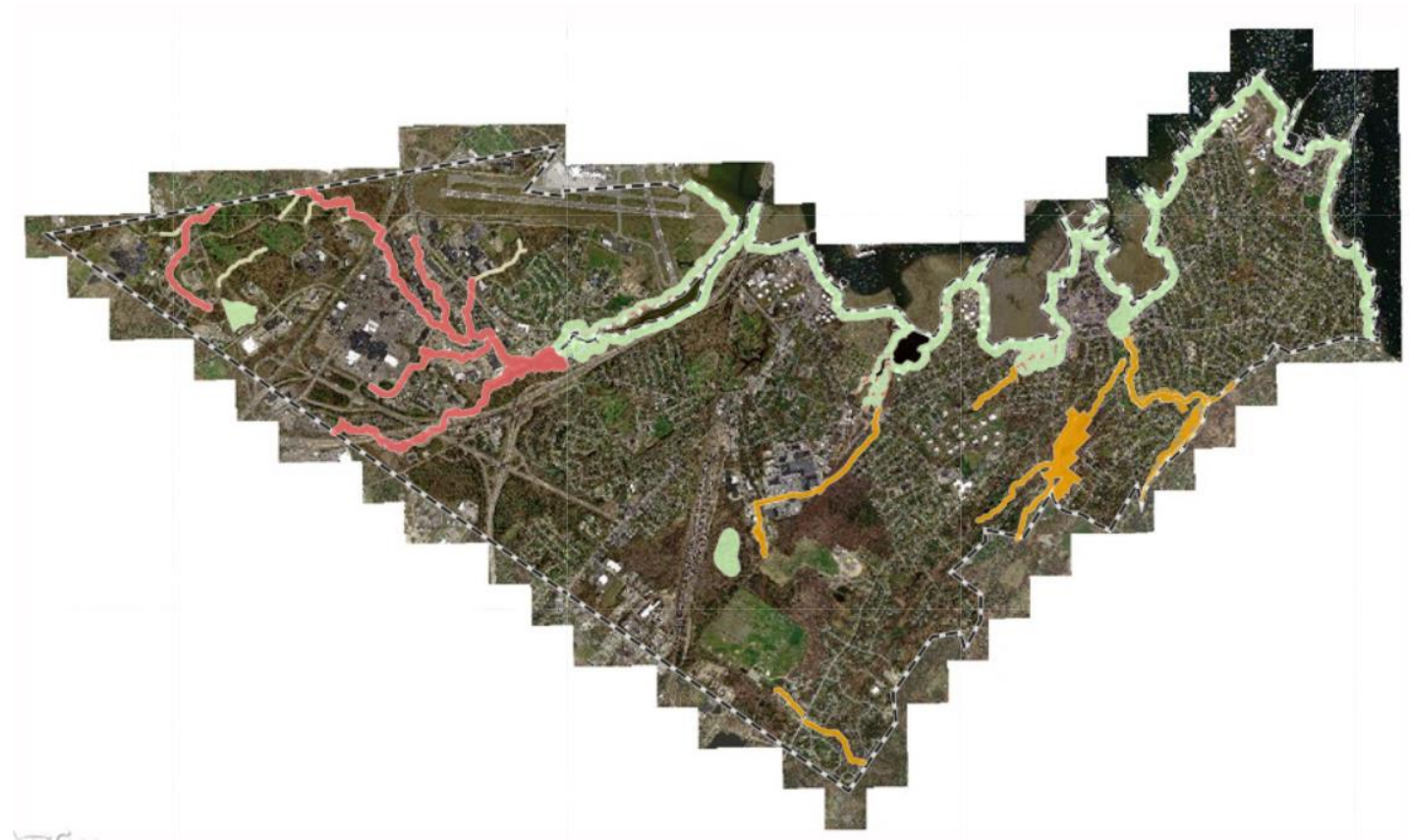


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South Portland's Ordinances

- Shoreland Overlay Districts
- Stormwater Performance Standards
- Pesticide Use Ordinance (effective May 2017)
- Animal Grazing Ordinance (effective April 2019)
- Pet Waste Management
- Fertilizer Ordinance (in development)



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Sec. 27-1311. Shoreland Area Overlay District.

The Shoreland Area Overlay District, as shown on the Official Shoreland Zoning Map and which map is made a part of this Article, includes all of the area that is subject to the requirements of this Article. The Shoreland Area Overlay District includes:

- All land areas within two hundred fifty (250) feet, horizontal distance, of the upland edge of a coastal wetland, including all areas affected by tidal action;
- All land areas within two hundred fifty (250) feet, horizontal distance, of the upland edge of a shoreland freshwater wetland; and
- All land areas within the Stream Protection Overlay Subdistricts (SP-1, SP-2, and SP-3).

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PERFORMANCE STANDARDS – STORMWATER MANAGEMENT

Sec. 27-1536. Performance standards with respect to stormwater management

DRAINAGE PLAN

- Use of SW treatment / management encouraged but not required
- Activities not subject to site plan review that increase IC by > 5,000 ft²
- Proposed improvements must minimize impacts of stormwater leaving the site
- Cannot create downstream problems or exceed MS4 capacity

BASIC SW MANAGEMENT PLAN*

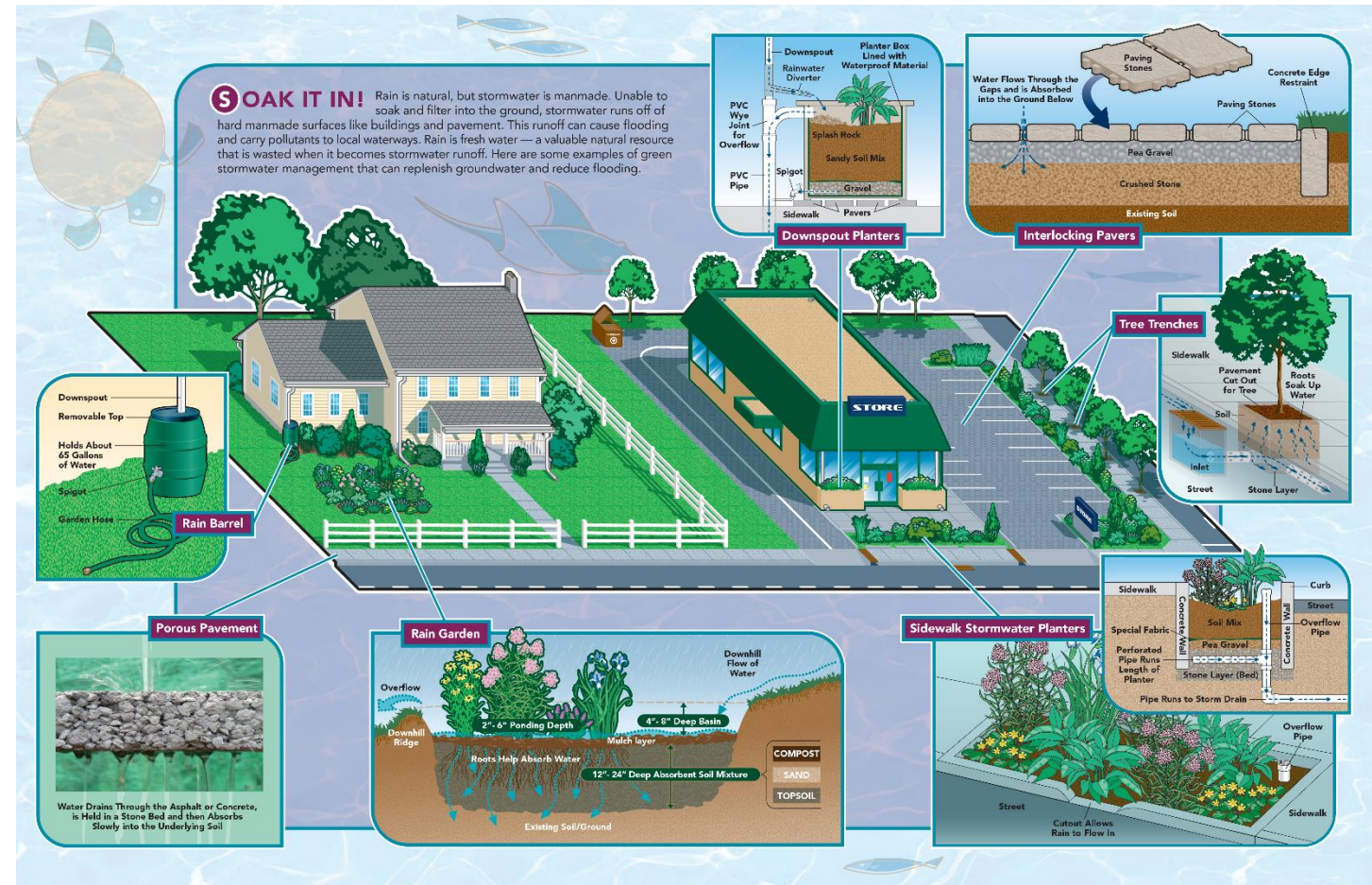
- SW treatment / management required as determined by Planning Board
- Activities subject to site plan review but not Post-Construction Stormwater Management Plan requirements
- Treatment for 0.5" runoff from 90% of IC and 0.2" runoff from all disturbed pervious areas
- All stormwater treatment techniques must be maintained in perpetuity

POST-CONSTRUCTION SW MANAGEMENT PLAN

- SW treatment / management required as determined by Planning Board
- Activities subject to site plan review > 15,000 ft² of disturbed area
- Ch. 500 or treatment for 0.5" runoff from 90% of IC and 0.2" runoff from all disturbed pervious areas of the site.
- All stormwater treatment techniques must be maintained in perpetuity; easements required allowing City access for periodic maintenance
- Annual 3rd party inspection required w/ certified report by 7/15

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Growing Healthy and Safe with the Pesticide Use Ordinance

To create and foster vibrant landscapes that protect the health of people, pets, pollinators, and our critical waterways, the City of South Portland is restricting the use of synthetic pesticides on all public and private property except in limited circumstances. The City's [Pesticide Use Ordinance](#) establishes organic land care methods as the primary means to care for and maintain property in South Portland including lawns, gardens, athletic fields, parks, and playgrounds. The [Pest Management Advisory Committee](#) (PMAC) is charged with advising the City Council and Sustainability Director on the implementation of the ordinance.

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Japanese Knotweed

Japanese knotweed was introduced to the U.S. in the late 1800's as an ornamental and was desirable for its showy flowers that lasted late into the season. It is a perennial herbaceous plant that forms dense monocultures, consuming both the canopy and the underground rhizome system. It's roots can grow as wide as its canopy cover. A tiny rhizome, an underground stem, can give rise to an entirely new plant, therefore it is easily spread, and takes over areas by outcompeting in both the overstory and underground.



Illustration from Curtis's Botanical Magazine

Japanese Knotweed at Yerxa Park



Looking northwest—standing at entrance of existing park



Standing on bike path looking east, project area on the left



Looking west (from in the existing park) into the center of the project area



Standing on bike path looking north into the project area



Before



After



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THE FORECASTER > Posted May 8 | Updated June 28

South Portland animal grazing ordinance moves forward

BY KRYSTEANA SCRIBNER

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SOUTH PORTLAND — Residents may see goats being used for vegetation control in the city as soon as this summer if an amendment to an [animal grazing ordinance](#) is approved by the City Council May 21.

An amendment that tweaks setback requirements in the West End Neighborhood District Zone also passed scrutiny at the meeting Tuesday, May 7.

Councilors showed strong support and enthusiasm for the grazing proposal, voting unanimously to approve the first reading of the amendment.

“This is yet another example of how our city can be a model for sustainability going forward,” City Councilor Katherine Lewis said.

Prescribed grazing would allow businesses and residents to use goats and sheep as alternatives to pesticides and gas-powered mowing equipment.

ARTICLE IV. PRESCRIBED ANIMAL GRAZING FOR VEGETATION CONTROL

Sec. 3-101. Purpose.

The purpose of this Article is to provide standards for the temporary use of goats and sheep for vegetation control. Prescribed grazing provides an alternative to potentially harmful pesticides to control aggressive invasive species like Japanese Knotweed and poisonous or noxious species like Poison Ivy. These animals can easily access more rugged, overgrown or steep terrain that may not be suitable for machines, equipment or people. In addition to vegetation control for invasive, poisonous or noxious species, prescribed grazing may also be used for general vegetation control on parcels of land with a minimum land area of one acre (43,560 s.f.).

The City recognizes that without appropriate regulation, prescribed grazing could create adverse neighborhood impacts as a result of odor, unsanitary conditions, unsanitary waste storage and non-confined animals leaving the intended grazing area. This Article establishes permitting standards and requirements that are intended to ensure that grazing animals do not adversely impact the neighborhood surrounding the property on which the animals are grazing.

(Ord. No. 15-18/19, 4/23/19 [Fiscal Note: Less than \$1000])

Sec. 3-102. Definitions.

The following definitions apply to this Article:

Prescribed Grazing means the temporary use of goats or sheep grazed at a specified season and intensity to accomplish specific vegetation management goals.

Owner of Prescribed Grazing Animals or *Owner* means the owner of the prescribed grazing animals or that owner's representative, supervisor or other individual with responsibility for management of the prescribed grazing animals. The Owner must be available by telephone or email 24 hours a day.

Landowner means the person or entity that owns the real estate upon which the prescribed grazing is to occur.

(Ord. No. 15-18/19, 4/23/19 [Fiscal Note: Less than \$1000])

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Sec. 3-28. Dog waste in streets, parks, beaches.

*It shall be **unlawful** for any person to place, deposit, or permit to be deposited any dog excrement upon any street, park, beach, or within any storm sewer or storm drain of the city.*

Violation of this section shall subject a person to a fine of one hundred dollars (\$100.00) for the first offense; two hundred and fifty dollars (\$250.00) for a second offense; and five hundred dollars (\$500.00) for each violation thereafter.

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This flyer was created through a collaboration between the City of South Portland and the Maine Healthy Beaches Program.



With questions or concerns contact:

Stormwater Program
(207) 767-7675
or
Parks & Recreation
(207) 767-7650

If interested in water quality visit
www.maine.gov/dep/water/index.html

What to Do With Doo

Clean up after your pets to help keep South Portland's water clean!



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Members of the Committee:

Julie Rosenbach, Sustainability Director
Fred Dillon, Stormwater Program Coordinator
Jesse O'Brien, Agronomist Downeast Turf
Chip Osborne, Osborne Organics
Linden Thigpen, Resident
April Caricchio, City Councilor
Rick Peruzzi, Athletic Fields & Golf Course Manager, Parks & Rec Dept
Cathy Ramsdell, Friends of Casco Bay
Breece Sleeper, Always Green Tree Lawn and Landscape
Rachel Burger, Resident
Andrew Capelluti, Resident

SoPo Fertilizer Ordinance

- Genesis
- FWG composition
- Reference materials
- Process / timeline
- Key provisions

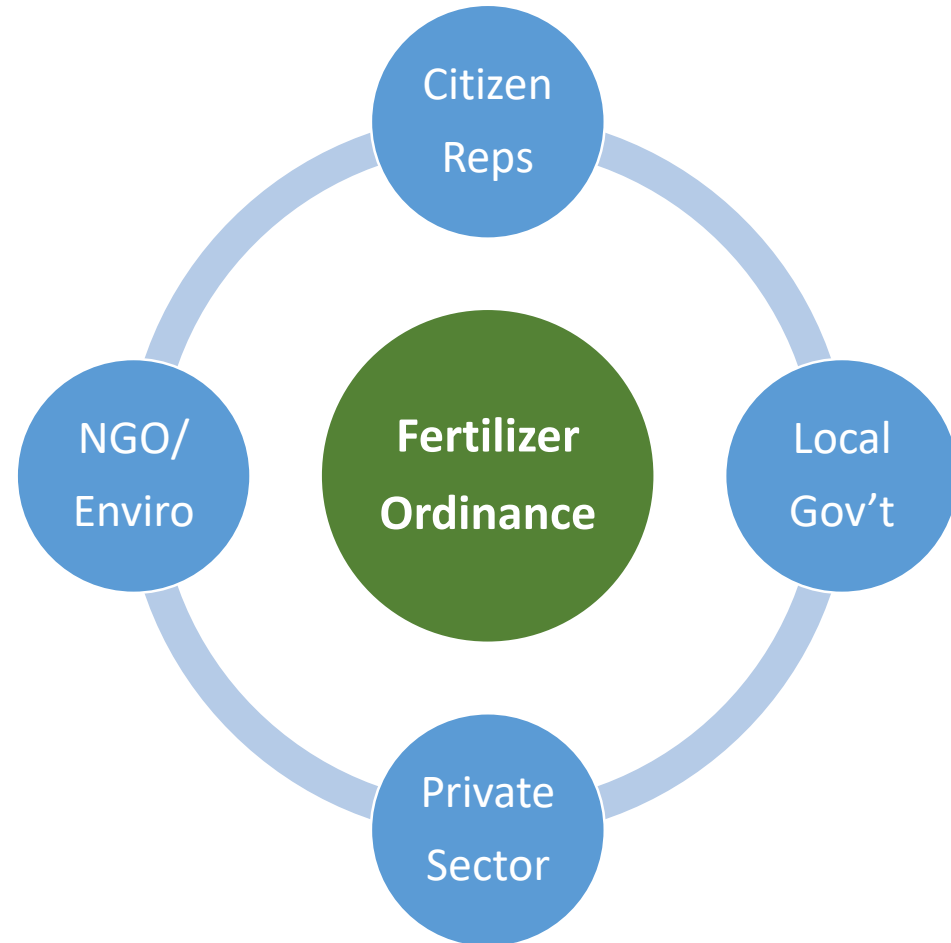
**PROTECT
SOUTH PORTLAND**

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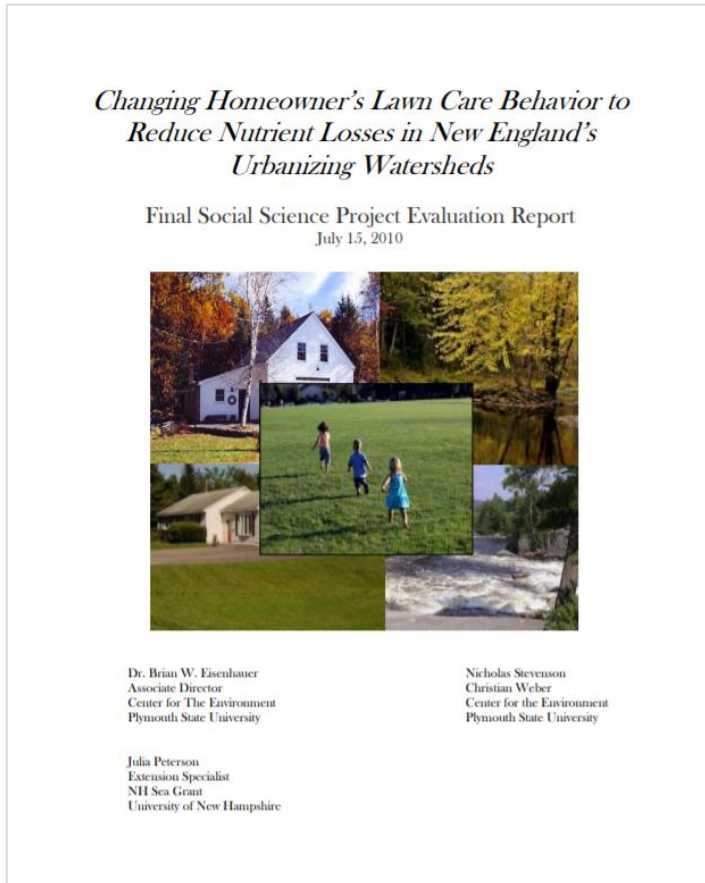
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Resources

File Name	Date Added	File Size
Changing Lawn Care Behaviors - Final Evaluation Report1.pdf	11/15/2019	1,664.83 KB
PhosphorusVol.32No.3.pdf	9/4/2019	1,793.22 KB
Soil_Quality_Restoration.pdf	9/4/2019	180.46 KB
How Fertilizers Harm Earth More Than Help Your Lawn - Scientific American.pdf	9/4/2019	159.80 KB
The Hidden Dangers of Chemical Fertilizers -- Environmental Protection.pdf	8/23/2019	106.71 KB
Global Nitrogen_Cycling out of Control.pdf	8/23/2019	1,288.84 KB
Nitrogen fertilizer is bad stuff — and not just because it could blow up your town __ Grist.pdf	8/23/2019	1,628.85 KB
The Nitrogen Problem_ Why Global Warming Is Making It Worse - Yale E360.pdf	8/23/2019	748.99 KB
JONES 'Nitrogen' (21July14).pdf	8/23/2019	3,419.61 KB
Unintended consequences of fert bans UFL.pdf	8/8/2019	1,096.65 KB
UNH Landscaping at the Waters Edge.pdf	8/8/2019	3,718.11 KB
SW_Manual_Presentation.PDF	8/8/2019	3,048.21 KB
2019-bc-peterson-grass presentation.pdf	8/8/2019	5,332.19 KB
2011_Turf_BMPs Gary Fish presentation.pdf	7/17/2019	1,574.58 KB
Friends of Casco Bay Nitrogen Ordinance Chart 6.27.2019.pdf	7/17/2019	101.45 KB
List of Regional Clean Water Guidelines for Fertilization of Urban Turf.pdf	6/21/2019	128.48 KB
Regional Clean Water Guidelines for Fertilization of Urban Turf.pdf	6/21/2019	1,598.86 KB

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SL 283

Urban Water Quality and Fertilizer Ordinances: Avoiding Unintended Consequences: A Review of the Scientific Literature¹

George Hochmuth, Terril Nell, Jerry Sartain, J. Bryan Unruh, Chris Martinez, Laurie Trenholm, and John Cisar²

Summary

Degraded inland urban and coastal water quality is a critical concern in Florida. Nutrients released from urban land-based human activities (disturbed soil, fertilizer, pet wastes, plant debris, atmospheric deposition, septic systems, and others) are present in water bodies, resulting in eutrophication and an increase in algal blooms that impair water quality. There are many scientific publications that document the nature and scope of the water pollution problem. There are differing approaches to addressing eutrophication, including adoption of current best management practices (BMPs) for nutrients, state regulation, or local ordinances. The local ordinance, sometimes including a summer fertilizer ban, has been the chosen approach by several Florida counties and municipalities to address local water quality issues. Many components of these ordinances follow published BMPs. There is agreement in the national literature on the effectiveness of BMPs and public education programs to reduce local water quality problems. However, there has been disagreement among stakeholders over the inclusion of a summer fertilizer ban in an ordinance. Other states do not use summer fertilizer bans, rather they use BMPs to reduce the risks for nutrient losses from

landscapes. There are numerous research reports that provide information about proper management of nutrients and irrigation throughout the year, especially in the summer, to optimize the benefits of turf in the landscape while protecting the environment. This paper provides a literature review of the critical eutrophication problem and the pertinent literature regarding managing urban landscapes to improve water quality with particular attention to N and P fertilization during the active plant growth period corresponding to summer fertilizer bans.

Reasons for this publication

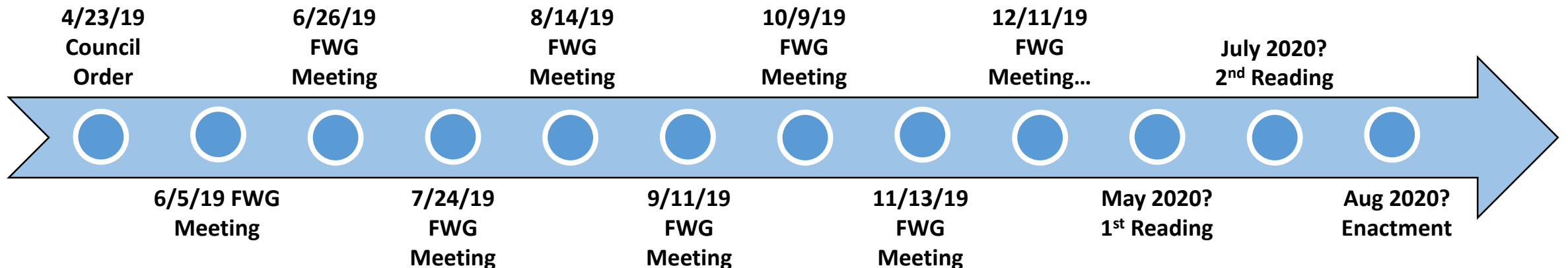
This publication was developed to serve the need for educational information on the urban landscape nutrient and water management issues, especially pertaining to protecting urban and coastal water quality. Eutrophication of water bodies is a major problem faced by the state, counties, and municipalities; their officials are asking for more information to assist them in making decisions about legislation for protecting water quality. Educators, county extension agents, representatives of non-governmental organizations, and leaders of the fertilizer, turf, nursery, and landscape maintenance industries also are asking UF/IFAS

1. This document is SL 283, one of a series of the Department of Soil and Water Sciences, UF/IFAS Extension. Original publication date March 2009. Revised February 2011. Reviewed May 2017. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. George Hochmuth, professor, Department of Soil and Water Sciences; Terril Nell, former professor and chair, Department of Environmental Horticulture; Jerry Sartain, professor, Department of Soil and Water Sciences; J. Bryan Unruh, professor, Department of Environmental Horticulture; Chris Martinez, assistant professor, Department of Agricultural and Biological Engineering; Laurie Trenholm, associate professor, Department of Environmental Horticulture; and John Cisar, professor, Department of Soil and Water Sciences; UF/IFAS Extension, Gainesville, FL 32611.

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PROHIBITIONS

- Within 75' of a water body or wetland
- On frozen, impervious or saturated surfaces
- Before or during heavy rain
- During summer dormancy
- P unless soil test indicates need (OK for new dev)

DIFFERENT APP RATES FOR DIFFERENT LAWN TYPES

- Performance turf
- New development / re-establishment
- All other turf (maybe prohibit?)

EDUCATION & OUTREACH and BMPs

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TBD

- Enforcement
- Reporting
- Sales
- Org/synth – quick/slow

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