Recent Advances in Lawn and Landscape Management

April 24, 2008
Coastal Institute
University of Rhode Island
Kingston, RI

The Storm Water Phase II Education and Outreach Project
Acknowledgments

The Storm Water Phase II Education and Outreach project is funded by the Rhode Island Department of Transportation in partnership with the Rhode Island Department of Environmental Management.

Today’s program was developed by the URI Cooperative Extension within the College of the Environment and Life Sciences and co-sponsored by the Rhode Island T2 Center.
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Workshop Objective

Promote use of low-input lawn and landscape care practices to protect local water resources and reduce risk of stormwater pollution.

Assist municipalities, RIDOT and other MS4s to meet Phase II minimum measures:
#1 Education and Outreach
#2 Public Involvement and Participation
#6 Pollution Prevention /Good Housekeeping
Workshop Logistics

- Handout packet
- Agenda review
- Facilities in Coastal Institute Bldg.
- Please turn off cell phones
- Breaks
- Informal format
- Evaluations
Upcoming Program

April 29, 2008
Roadway Storm System Maintenance

Still Seats Available!
Overview of Stormwater Issues

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URI Coastal Institute, Kingston, RI

Lorraine Joubert, URI Cooperative Extension
Nonpoint Education for Municipal Officials - NEMO
Water Pollution in RI?
Public perception and progress

Fields Point
Stormwater pollution is now the #1 water quality problem in the U.S.

...And the major source of pollution to RI waters
In R.I. 22% of surface waters are not meeting fishable swimmable standards due to stormwater pollution. - RIDEM

In recent years, up to 75% of annual beach closures were traced to stormwater pollution. - RI Health
What is Stormwater pollution?

- Rainwater falling on roads, parking lots and other impervious surfaces picks up oil, spills, road sand and salt, sediment from construction sites, fertilizers, animal waste and discharges it to the nearest stormdrain without treatment.

http://www.oceanservice.noaa.gov/education/kits/estuaries/media/supp_estuar09c_pathogens.html
Runoff in the Water Cycle
Development Impacts on the Water Cycle

- 40% runoff
- 30% runoff

- 10% runoff
- 50% runoff

- 15% runoff
- 55% runoff
Development Impacts:

**Water Quantity**

- Increased runoff quantity
- Flooding
- Erosion
Development Impacts: Water Quality

Sediment
Nutrients
Bacteria & viruses
Oil, toxics
Trash, plant debris
Road salt
Thermal Stress

More Runoff = More Pollutants
Why focus on landscape care?

**Water Quality**
Materials used or stored can pollute stormwater
- Sediment
- Nutrients
- Oil, toxics
- Trash, plant debris

**Water Quantity**
- Lawn watering **triples** water use.
- Runoff from compacted soil

**Thermal Stress**
Polluted runoff from Lawns, parks & roadsides ROWs

**Nutrients:** Fertilizers, wastewater
**Pathogens:** Pets & wildlife
**Sediment:** Erosion from disturbance or heavy use
**Toxic:** Pesticides, oil from equipment
**Debris:** Litter and plant waste
**Thermal:** Removal of streamside vegetation, shallow water impoundments
Nutrients- Nitrogen and phosphorus are essential for plant growth but are pollutants in local water resources.
Nitrogen

*Drinking water contaminant*

*Overfertilizes coastal waters*

- Nuisance seaweed replaces eelgrass,
- Smothers habitat,
- Algae decays and consumes oxygen.

Many RI coastal waters are impaired due to excessive nutrients and low oxygen.
Phosphorus overfertilizes fresh water

Organic matter affects taste & odor

Algae and aquatic plants limit recreational use & aquatic habitat.
RI Development Trends – shift from forest and agricultural to developed

INTENSITY OF LAND USE

Amount of IMPERVIOUS SURFACE

Water Quantity & Quality Impacts
Summary

Stormwater pollution comes from many small sources with no single fix, but practical solutions are available now:

**Simple steps**

- Sweeping fertilizer off pavement

**New storm water controls**

- N. Kingstown Town Hall rain garden

**Updated practices**

- Low-input grass varieties
Resources at  www.uri.edu/ce/wq

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