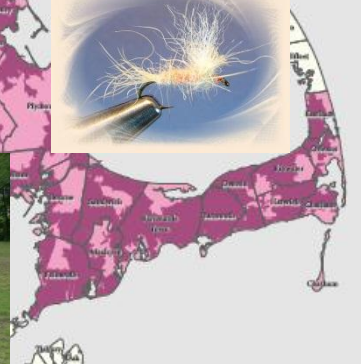
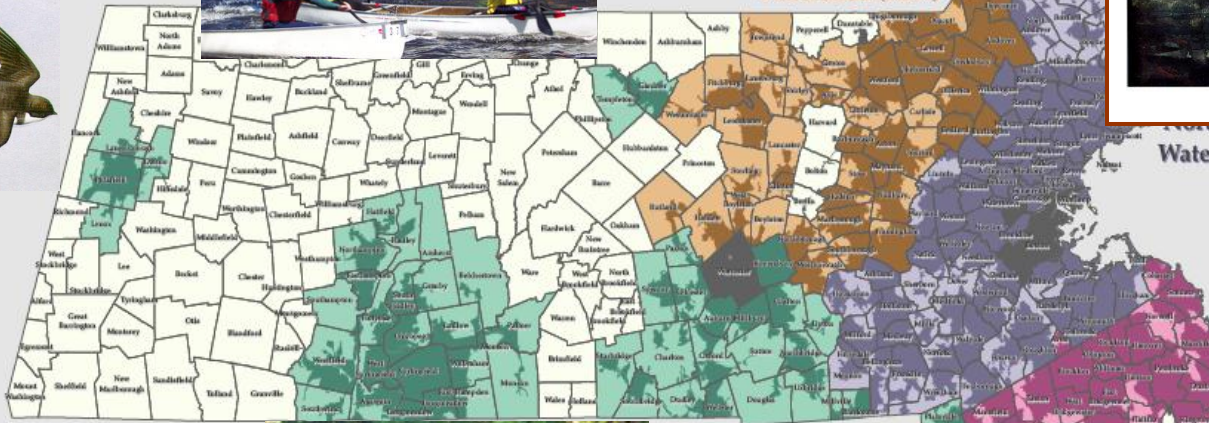


MS4s, rain gardens, caddisflies, brookies, birds, kids & you

Regulated MS4 A
General Permits i

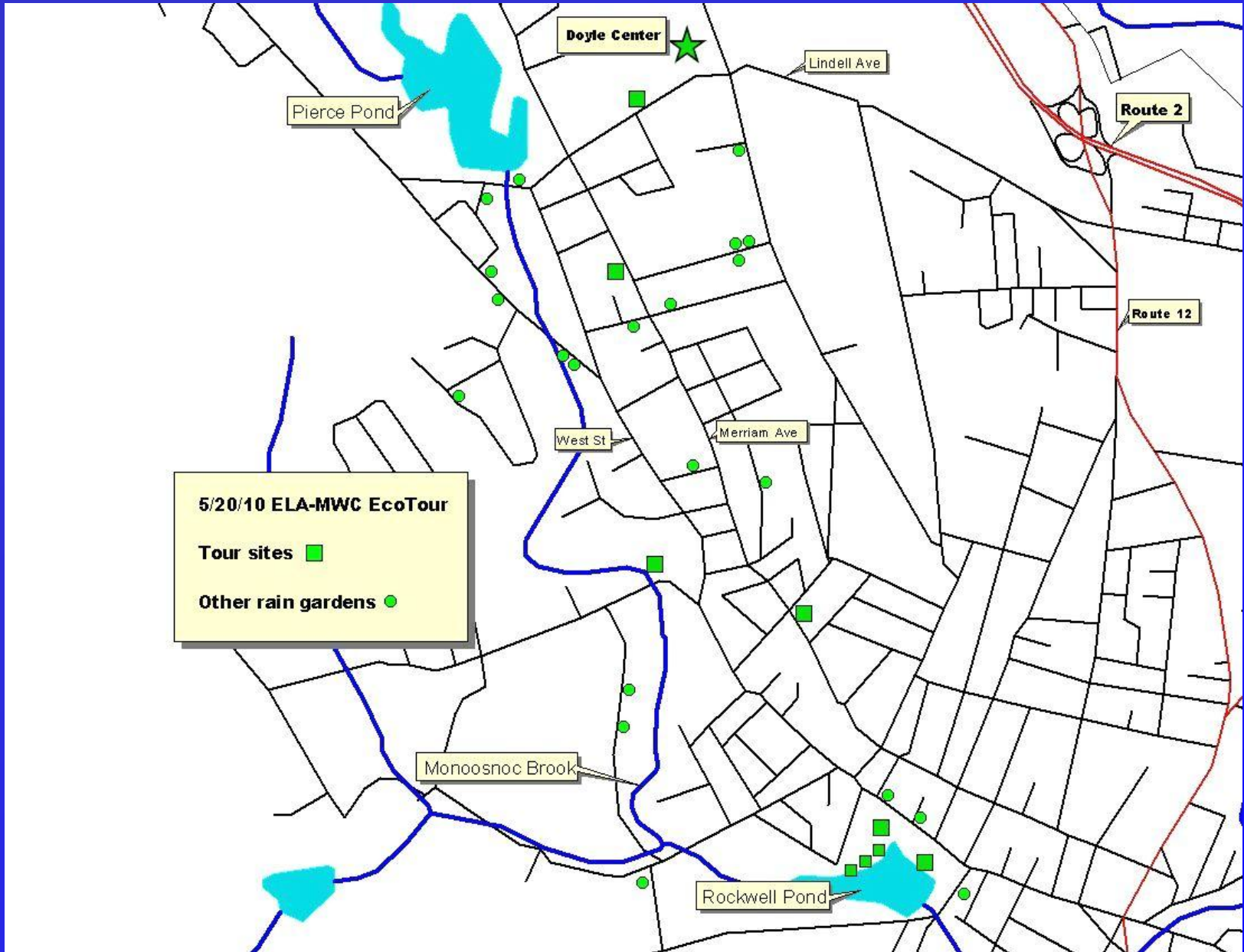
Watershed-Specific

Merrimack
Watershed (MW)

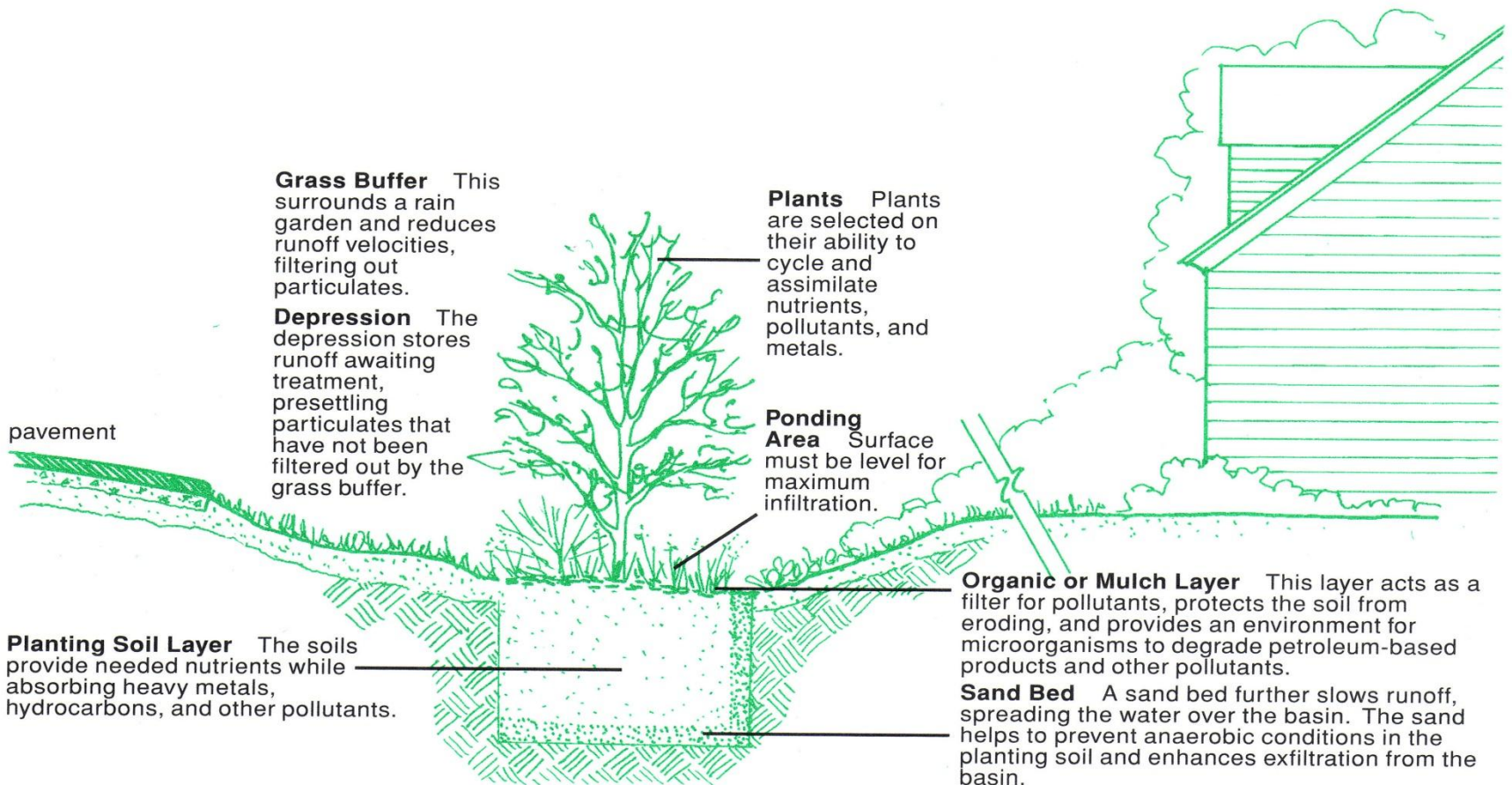




Monoosnoc Brook Rain Gardens



Rain Gardens (Bioretention Basins)



365 Lindell Avenue – Boys & Girls Club



- Land Use: Institutional
- Runoff: driveway & street
- Type: ROW bypass
- Soils Groups: B/C
- Size: 180 sq. ft.
- Performance: Good, inlet adjusted
- Installed: July 2009

578 Merriam Avenue – Homeowner

- Land Use: Residential
- Runoff: driveway & roof
- Type: Infiltrating pool
- Soils Groups: A/B
- Size: 350 sq. ft.
- Perform: Excellent, owner added plants
- Installed: July 2009



77 Hall St. – United Methodist Church



- Land Use: Institutional
- Runoff: street
- Type: ROW bypass
- Soils Group: B
- Size: 300 sq. ft. RG & 100 sq.ft. treebox filter
- Performance: Good, inlets for both adjusted
- Installed: May 2009

106 West St – Richardson Funeral Home

- Land Use: Commercial
- Runoff: parking lots + street (major storms)
- Type: Overflow outlet
- Soils Groups: A
- Size: 350 sq. ft.
- Performance: Good, berm & outlet repaired
- Installed: October 2008



144 West St. – Villa Del Rio Condominium Association



- Land Use: Residential
- Runoff: driveways & parking lots
- Type: (3) bypass + larger RG with stone berm
- Soils Groups: B/C
- Sizes: 40 sq. ft; 60 sq. ft.; 140 sq. ft.; 250 sq. ft.
- Performance: Good, but large RG is slow draining, plants to be replaced
- Installed: September 2009

45 Granite St – Municipal Property

- Land Use: Industrial
- Runoff: parking lot
- Type: overflow outlet
- Soils Group: B
- Size: 400 sq. ft.
- Performance: Good, sediment trap added, inlet & outlet adjusted
- Installed: Oct 2009



Rain Garden Maintenance



- Inspect at least twice/year. Early spring and fall
- Remove sediment & debris from inlet and garden
- Prune as needed, remove dead/diseased plants and replace
- Replace mulch at least every other year – hardwood chips
- No insecticides, herbicides or fertilizers



Coleen Faris' first grade class shows off their completed book on the rain garden that they completed on the Fall Brook property.

LEOMINSTER CHAMPION 6/26/09 (front page)

Rain garden protects Fall Brook
Thanks to Mrs. Faris' first grade class
STORY AND PHOTOS BY DIANE C. BEAUDOIN

Crystal Lake Rain Garden Project

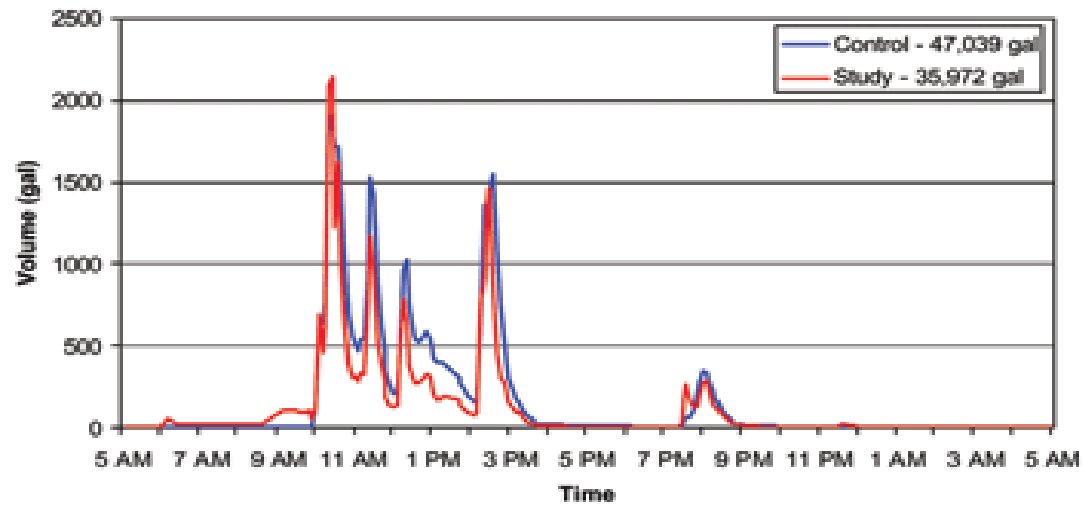


- Lake being damaged by stormwater
- Two adjacent neighborhoods – rain gardens built in one; other kept as is without rain gardens; amount of runoff from each measured before and after gardens built.

Pre-Construction Runoff Data

June 6, 2003

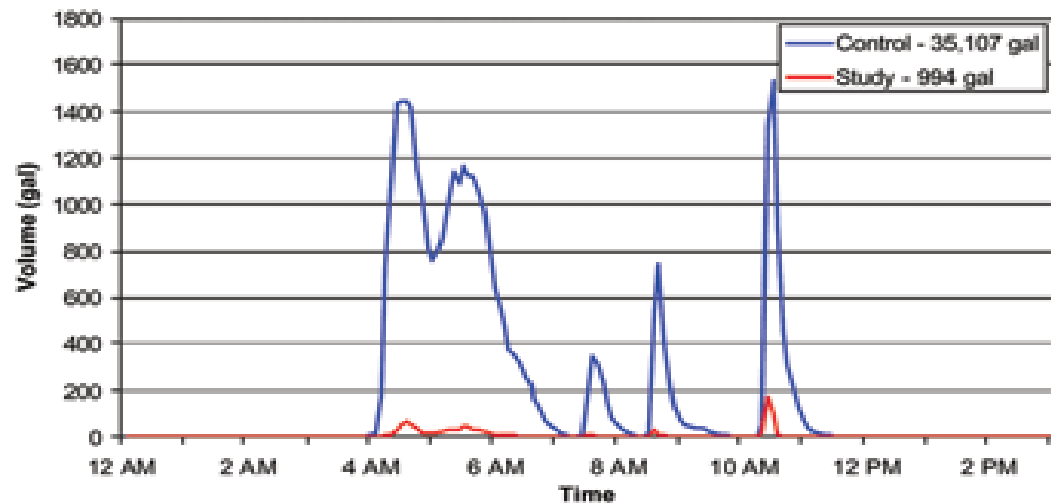
0.50" Rainfall



Post-Construction Runoff Data

May 29, 2004

0.71" Rainfall



Community Stormwater Solutions:

Stormwater is produced by the entire community and everyone can help to remedy runoff pollution.

Massachusetts Watershed Coalition

www.commonwaters.org



Water Pollution Americans' Top Green Concern

Gallup Poll, conducted March 5-8, 2009

(95% confidence that the maximum sampling error is ±3 percentage points)

Phone Interview - "I am going to read you a list of environmental problems. As I read each one, please tell me if you personally worry about this problem a great deal, a fair amount, only a little or not at all. First, how much do you personally worry about ...?"

	Great deal %	Fair amount %	Little or not at all %
Pollution of drinking water	59	25	16
Pollution of rivers, lakes and reservoirs	52	31	17
Contamination of soil & water by toxic waste	52	28	19
Maintenance of the nation's supply of fresh water for household needs	49	31	19
Air pollution	45	31	24
The loss of tropical rain forests	42	26	32
Extinction of plant and animal species	37	28	34
The "greenhouse effect" or global warming	34	26	40

30 Rain Gardens can cleanse 1,000,000 gallons of stormwater per year, AND remove air pollutants, reduce needs for air conditioning in summer, add micro habitats and enable local offsets for global warming.

Community Stormwater Solutions: Home Improvements – Rain Gardens & More



Redirected Downspouts



Porous Driveway



- Installed circa 1995 – cost about same as impervious
One foot gravel base on top of gravel sub-soils
- Snow melt & roof runoff do not cause ice formation – water seeps into ground
- Good condition; only a small crack at junction of old paving & new base
- Maintenance: sweep to remove sand & fines that can clog porous
- Do not use sealer

Porous Pavement



Rain Barrels

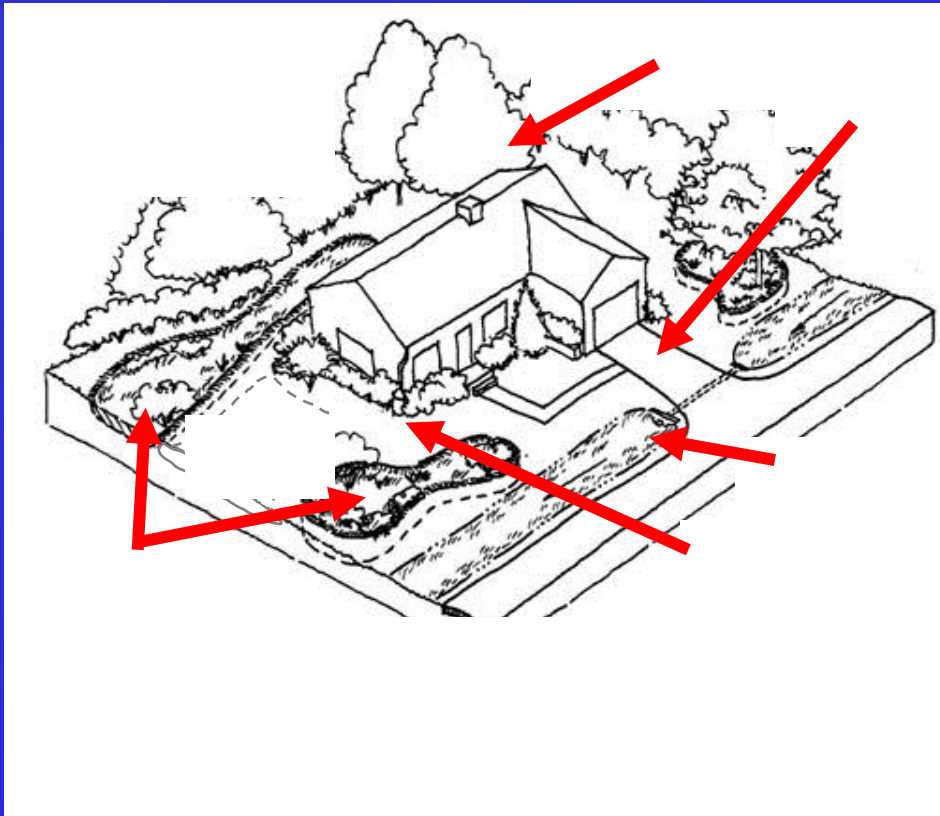


Roof Runoff Alternative

- Downspout into 6 inch perforated drain pipe
- Roof runoff goes into garden soils – less need for watering
- Filter fabric prevents clogging of pipe
- Keep away from septic leach field and away from foundation



Home solutions keep stormwater out of local streams, lakes, water supplies



- Pervious driveways
- Porous walkways
- Redirect downspouts
- Rain Gardens
- Rain Barrels
- Plant trees & shrubs
- Groundcover buffers