



MOCA PARTNERSHIP MINI-SYMPOSIUM ON OA REMEDIATION PROJECTS AND POLICY DIRECTIONS

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Setting the Stage

Conversation

Ocean Acidification → Coastal Acidification

Major Contribution to Acidification

Caused by CO₂ → Caused by Nutrients

State of the Science

Overview presented at the MOCA Symposium,
June 29, 2016



What is Stormwater?



What's in Stormwater?

- Soil, sand, & sediment
- Chemicals
- Pet waste
- Salt
- Trash and debris
- Fertilizer and pesticide



Where Does Stormwater Go?

Storm Drain Systems are Separate from Wastewater Systems

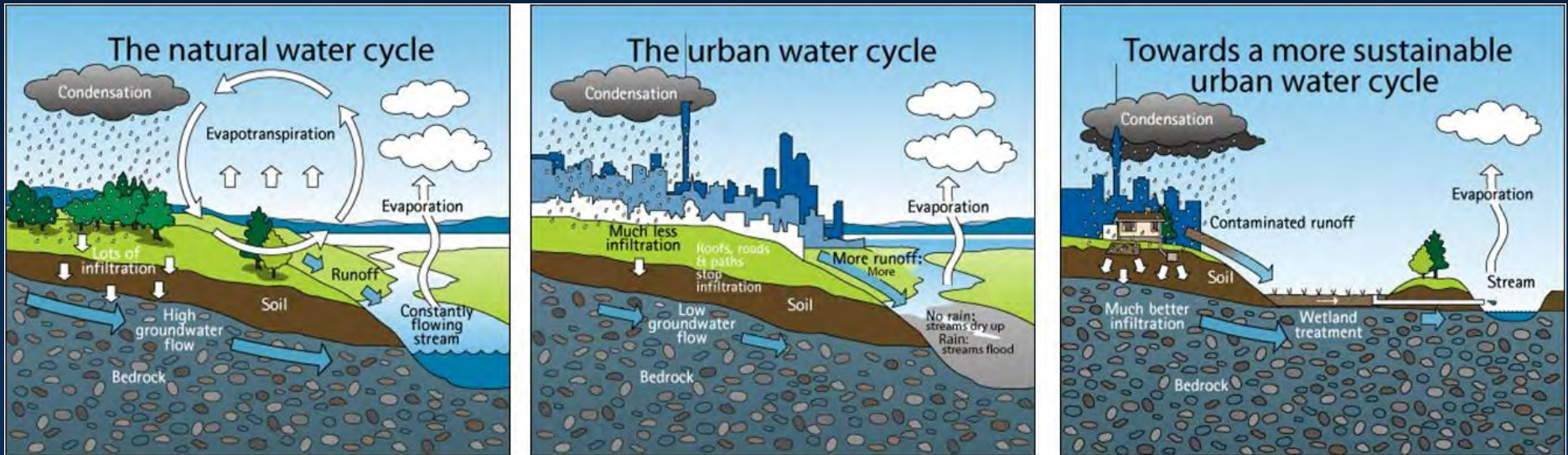


Graphic: City of Chandler, Arizona



Urban Stormwater

Graphic: Auckland City Council



↑
Less-
developed
state

↑
What we cause
with increased
development

↑
What we are
trying to create
with new
development



State Stormwater Law

- “Stormwater Management Law and Site Location of Development Law” = Chapter 500
- **Applies:** to projects that disturbs one acre or more of land area (new or re-development)
- **Treatment:** at least 95% of the impervious area and 80% of the developed area
- **Method:** a variety of treatment systems; each needs to capture specific # of inches of rain

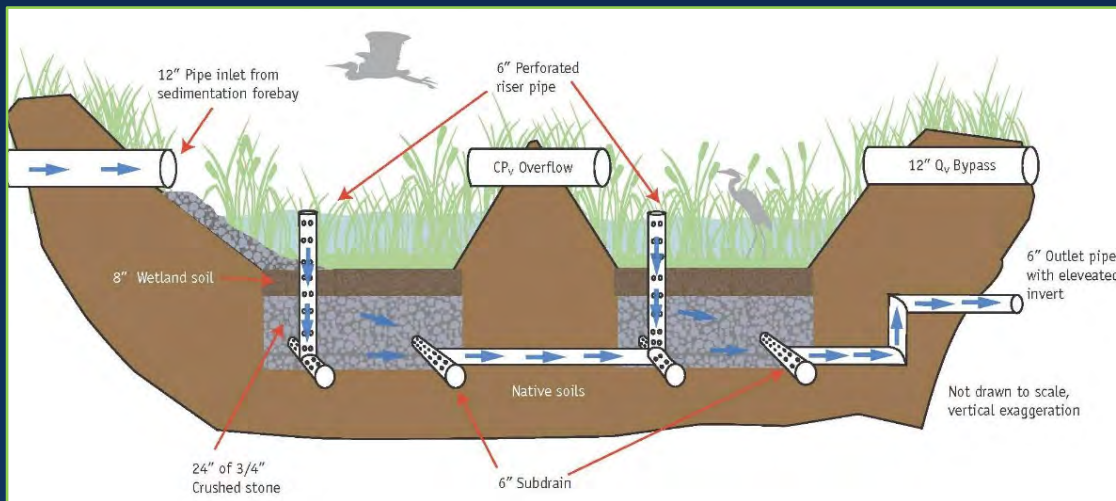


Stormwater Treatment Systems

- Pretreatment
- Treat & discharge
- Treat & infiltrate



Pretreatment; Source: USEPA



Treat and discharge

Source: Water Environment Federation



Treat and infiltrate

Source: Contech



Stormwater Treatment Systems



Vegetated Medians



**Underdrained Soil
Filters**



StormTreat Units



Gravel wetland



Jellyfish High-Rate Filters



Clean Water Act (CWA) Permit

Regulated municipalities must have a permit to direct runoff to water bodies in their communities, but specific requirements must be taken to minimize pollution.



Stormwater (MS4) Towns in Maine

- Auburn
- Bangor
- Berwick
- Biddeford
- Brewer
- Cape Elizabeth
- Cumberland
- Eliot
- Falmouth
- Freeport
- Gorham
- Hampden
- Kittery
- Lewiston
- Lisbon
- Milford
- Old Orchard Beach
- Old Town
- Orono
- Portland
- Sabattus
- Saco
- Scarborough
- South Berwick
- South Portland
- Veazie
- Westbrook
- Windham
- Yarmouth
- York



6 Minimum Control Measures

- **MCM 1:** Public Education & Outreach
- **MCM 2:** Public Participation
- **MCM 3:** Illicit Discharge Detection and Elimination



6 Minimum Control Measures

- **MCM 4:** Construction
- **MCM 5:** Post-Construction
- **MCM 6:** Good Housekeeping & Pollution Prevention



Challenges with Stormwater Treatment

- **Capital cost** → if not Chapter 500, what teeth does a Town have to require this in new or redevelopment?
- **Maintenance cost** → Long Creek example; stormwater utilities
- **Identifying responsibility** → Town vs. homeowner association vs. private resident?
- **Effectiveness** → still collecting data on what works

